

RADIO SERVICE BULLETIN

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Washington, June 30, 1928—No. 135

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ABBREVIATIONS AND SYMBOLS

The necessary corrections to the list of Commercial and Government Radio Stations of the United States and to the International List of Radiotelegraph Stations, appearing in this bulletin under the heading "Alterations and corrections," are published after the stations affected in the following order:

- Name = Name of station.
- Loc. = Geographical location. O = west longitude. N = north latitude.
S = south latitude.
- Call = Call signal (letters) assigned.
- System = Radio system used and sparks per second.
- Range = Normal range in nautical miles.
- W. l. = Wave lengths in meters; normal wave lengths in italics.
- Fy. = Frequency in kilocycles; normal frequency in italics.
- Service = Nature of service maintained:
 - FX = Point-to-point (fixed service).
 - PG = General public.
 - PR = Limited public.
 - RC = Radio compass.
 - FA = Aeronautical station.
 - AB = Aviation beacon.
 - B = Beacon.
 - P = Private.
 - O = Government business exclusively.
- Hours = Hours of operation:
 - N = Continuous service.
 - X = No regular hours.
- F. T. Co. = Federal Telegraph Co.
- I. R. T. Co. = Intercity Radio Telegraph Co.
- I. W. T. Co. = Independent Wireless Telegraph Co.
- K. & C. = Kilbourne & Clark Manufacturing Co.
- M. R. T. Co. = Mackay Radio and Telegraph Co.
- R. C. A. = Radio Corporation of America.
- R. M. C. A. = Radiomarine Corporation of America.
- T. R. T. Co. = Tropical Radio Telegraph Co.
- U. R. Corp. = Universal Radio Corp.
- W. S. A. Co. = Wireless Specialty Apparatus Co.
- C. w. = Continuous wave.
- I. c. w. = Interrupted continuous wave.
- A. c. = Alternating current.
- V. t. = Vacuum tube.
- U. S. L. = Applies only to the list of Commercial and Government Radio Stations of the United States.
- Δ = Equipped with a radio compass (direction finder).

NEW STATIONS

Commercial land stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave lengths	Service	Hours	Station controlled by—
Bolinas, Calif. ¹	KEJJ KEJ	33.296	FX	N	R. C. A.
Do. ¹	KERR KER	28.874	FX	N	Do.
Do. ¹	KKQQ KKQ	25.105	FX	N	Do.
Do. ¹	KRRR KRR	19.405	FX	N	Do.
Do. ¹	KKZZ KKZ	21.914	FX	N	Do.
Do. ¹	KQJJ KQJ	16.648	FX	N	Do.
Do. ¹	KQZZ KQZ	16.685	FX	N	Do.
Elizabeth, N. J. ²	WMU	15.167, 38.58	FX	N	Standard Oil Co. of New Jersey.
Hollywood, Calif.	KGGZ	48.50	FX	X	United Artists Studio.
Honolulu, Hawaii ³	KGHH KGS	13.24, 15.94, 20.15, 20.19, 27.45, 31.88, 40.29, 40.38.	FX	N	Robert Dollar Co.
Kahuku, Hawaii ⁴	KQHH KQH	15.773	FX	N	R. C. A.
Los Angeles, Calif. ⁵	KGHE KGX	13.24, 15.94, 20.15, 20.19, 27.45, 31.88, 40.29, 40.38.	FX	N	Robert Dollar Co.
New Brunswick, N. J. ⁶	WAZZ WAZ	20.107	FX	N	R. C. A.
New York, N. Y. ⁷	WSBA WGA	13.24, 15.94, 20.15, 20.19, 27.45, 31.88, 40.29, 40.38.	FX	N	Robert Dollar Co.
Do. ⁸	WKWW WKW	18.715	FX	N	R. C. A.
Port Graham, Alaska ⁹	KGGW KFO	600, 731, 1,440	P	X	T. H. Killam.
Rocky Point, N. Y. ¹⁰	WEDD WED	28.222	FX	N	R. C. A.
Do. ¹¹	WEGG WEG	30.894	FX	N	Do.
Do. ¹²	WETT WET	31.879	FX	N	Do.
Do. ¹³	WKQQ WKQ	18.75	FX	N	Do.
Do. ¹⁴	WKUU WKU	20.229	FX	N	Do.
Do. ¹⁵	WQGG WQG	19.947	FX	N	Do.
Do. ¹⁶	WQV WQWW	15.907	FX	N	Do.
Do. ¹⁷	WQW	14.085	FX	N	Do.
San Francisco, Calif. ¹⁸	KGHK KQQ	13.24, 15.94, 20.15, 20.19, 27.45, 31.88, 40.29, 40.38.	FX	N	Robert Dollar Co.
San Juan, P. R. ¹⁹	WGXX WGX	43.541	FX	N	R. C. A.
Santa Cruz Island, Calif.	KGGX	48.50	FX	X	United Artists Studio.
Scow No. 5 (moored vessel near Nushagak, Alaska). ¹⁰	WGDM KHY		P	X	Alaska Salmon Co.
Seattle, Wash. ¹¹	KGHJ KGR	13.24, 15.94, 20.15, 20.19, 27.45, 31.88, 40.29, 40.38.	FX	N	Robert Dollar Co.
Tandag, P. I. (Surigao) ¹¹	KZTG	600, 775, 925	PG		Philippine Insular Government.
Todd, Alaska ¹²	KGGV KFP	90, 720	FX	X	Peril Straits Packing Co.

¹ Loc. (approximately) 122° 40' 45" W., 37° 54' 30" N.; system, R. C. A.-composite v. t. telegraph, c. w.² System, composite v. t. telegraph.³ System, composite v. t. telegraph, c. w. and i. c. w., and phone.⁴ Loc. 157° 58' 33" W., 21° 42' 12" N.; system, R. C. A.-composite v. t. telegraph, c. w.⁵ Loc. 74° 29' 15" W., 40° 30' 10" N.; system, R. C. A.-composite v. t. telegraph, c. w.⁶ System, R. C. A.-composite v. t. telegraph, c. w.⁷ Loc. (approximately) 151° 50' 00" W., 59° 21' 00" N.; system, composite v. t. telegraph, i. c. w.⁸ Loc. (approximately) 72° 56' 30" W., 40° 55' 45" N.; system, R. C. A.-composite v. t. telegraph, c. w.⁹ Loc. (approximately) 66° 06' 00" W., 18° 28' 00" N.; system, R. C. A.-composite v. t. telegraph, c. w.¹⁰ System, composite v. t. telegraph, c. w.¹¹ Loc. (approximately) 126° 11' 30" E., 9° 04' 30" N.; system, R. C. A., 1,000; hours, 8 a. m. to 12 noon, and 2 to 5.30 p. m. daily, 9 to 11 a. m. Sundays and holidays; ship service, 15-25 of each hour; rates, 6 cents per word.¹² Loc. (approximately) 135° 10' 00" W., 57° 36' 00" N.; system, composite v. t. telegraph, i. c. w.

NOTE.—Where a station has 2 call signals, the 4-letter signal is to be used until Oct. 1, 1928, when it will be canceled; after that date the 3-letter signal is to be used.

Commercial ship stations, alphabetically, by names of vessels

[Additions to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Name of vessel	Call-signal	Rates	Service	Hours	Owner of vessel	Station controlled by—
Ansonia ¹	WGDF		P	X	Crosby Fisheries	Owner of vessel.
Barranca	KIFR	8	PG	X	New Orleans Coal and Bisso Towboat Co.	Do.
Blue Sea ¹	WGDE		P	X	Crosby Fisheries	Do.
City of Victoria	WSBB				Edmonds-Victoria Ferry Co.	
Eastern Guide ²	KUCN	8	PG	X	Pacific Coast S. S. Co.	M. R. T. Co.
Fernandez Hermanos ³	KZCY	8	PG	X	Compania Maritima	Owner of vessel.
Gladys	WSBD				Francis W. Payne	
Haida	WGDC				Max Fleischmann	
Irene L. ⁴	WGGG		P	X	Crosby Fisheries	Do.
Iroquois ⁵	KGGY		P	X	Bellingham Barge & Tug Co.	
Kariuk ⁶	WGDK		P	X	George G. Williams	Do.
Memory III	WGDN				A. E. Fitkin	Do.
Neil MacLeod ⁷	KZAG	8	PG	X	Compania Maritima	Do.
North Dakota	WRBZ				Eutopian Fisheries Co.	
Queen Anne	WGDD				Isaac E. Emersen	
Yloilo ⁶	KZCW	8	PG	X	Hijos de I. de la Rama	Do.
Zodiac ⁷	WGDL	8	PG	X	R. W. and J. S. Johnson	R. M. C. A.

¹ Range, 50; system, composite v. t. telephone; w. l., 53.57, 132.4.

² Range, 300; system, Navy-Marconi, 1,000; w. l., 600, 705, 800.

³ Range, 250; system, U. S. Navy, 1,000; w. l., 600.

⁴ W. l., 600, 705, 800.

⁵ Range, 50; system, composite v. t. telephone and telegraph, c. w. and l. c. w.; w. l., all amateur bands.

⁶ Range, 200; system, v. t. telegraph, c. w.; w. l., 600, 750.

⁷ Range, 150; system, R. C. A. v. t. telegraph, l. c. w.; w. l., 600, 640, 705, 750, 800.

Commercial land and ship stations, alphabetically, by call signals

[b, ship station; c, land station]

Call signal	Name of station	Call signal	Name of station
KEJ	Bollnas, Calif.-----c	KZCY	Fernandez Hermanos-----b
KEJJ	-----c	KZTG	Tandag, P. I. (Surigao)-----c
KER	do-----c	WAZ	New Brunswick, N. J.-----c
KERR	-----c	WAZZ	-----c
KFP	Todd, Alaska-----c	WED	Rocky Point, N. Y.-----c
KGGV	-----c	WEDD	-----c
KFQ	Port Graham, Alaska-----c	WEG	do-----c
KGGW	-----c	WEGG	-----c
KGGX	Santa Cruz Island, Calif.-----c	WET	do-----c
KGGY	Iroquois-----b	WETT	-----c
KGGZ	Hollywood, Calif.-----c	WGA	New York, N. Y.-----c
KGQ	San Francisco, Calif.-----c	WSBA	-----c
KGHK	-----c	WGDC	Haida-----b
KGR	Seattle, Wash.-----c	WGDD	Queen Anne-----b
KGHJ	-----c	WGDE	Blue Sea-----b
KGS	Honolulu, Hawaii-----c	WGDF	Ansonia-----b
KGHH	-----c	WGGG	Irene L.-----b
KGX	Los Angeles, Calif.-----c	WGDG	Irene L.-----b
KGHE	Scow No. 5 (moored vessel near Nusha- gak, Alaska)-----c	WGDK	Kariuk-----b
KHY	-----c	WGDL	Zodiac-----b
WGDM	Barranca-----b	WGDN	Memory III-----b
KIFR	-----b	WGX	San Juan, P. R.-----c
KKQ	Bollnas, Calif.-----c	WGXX	-----c
KKQQ	-----c	WKQ	Rocky Point, N. Y.-----c
KKR	do-----c	WKQQ	-----c
KKRR	-----c	WKU	do-----c
KKZ	-----c	WKUU	-----c
KKZZ	-----c	WKW	-----c
KQH	Kahuku, Hawaii-----c	WKWW	-----c
KQHH	-----c	WMU	Elizabeth, N. J.-----c
KQJ	Bollnas, Calif.-----c	WQG	Rocky Point, N. Y.-----c
KQJJ	-----c	WGGG	do-----c
KQZ	do-----c	WQV	do-----c
KQZZ	-----c	WQW	do-----c
KUCN	Eastern Guide-----b	WQWW	-----c
KZAG	Neil Macleod-----b	WRBZ	North Dakota-----b
KZCW	Yloilo-----b	WSBB	City of Victoria-----b
		WSBD	Gladys-----b

NOTE.—Where a station has 2 call signals, the 4-letter signal is to be used until Oct. 1, 1928, when it will be canceled; after that date the 3-letter signal is to be used.

Commercial aircraft stations, alphabetically, by names of stations

[Additions to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Floyd Bennett....	WSX	30.29.....	P	X	Byrd Antarctic Expedition.

Commercial aircraft stations, alphabetically, by call signals

Call signal	Name of station	Call signal	Name of station
WSX	Floyd Bennett.		

Government land stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Portable.....	KGHM	.....	O	X	Department of Commerce, Coast and Geodetic Survey. Do. U. S. Navy.
Do.....	KGHS	.....	O	X	
San Diego, Calif.....	NDT	.....	O	X	

Government ship stations, alphabetically, by names of stations

[Additions to the List of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Service	Hours	Station controlled by—
Apo ¹	KZDB	450, 600, 700..	PG	X	Bureau of Commerce and Industry (Philippine Islands).

¹ Range, 500; system, Marconi, 1,000; rates, 4 cents per word.

Government land and ship stations, alphabetically, by call signals

[b, ship station; c, land station]

Call signal	Name of station	Call signal	Name of station
KGHM	Portable.....c	KZDB	Apo.....b
KGHS	do.....c	NDT	San Diego, Calif.....c

Government aircraft stations, alphabetically, by names of stations

[Additions to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

Station	Call signal	Wave length	Hours	Owner
(U. S. S.) Arizona—any aircraft attached to.....	NMGY			U. S. Navy.
(U. S. S.) Arkansas—any aircraft attached to.....	NMHL			Do.
(U. S. S.) California—any aircraft attached to.....	NMBC			Do.
(U. S. S.) Cincinnati—any aircraft attached to.....	NMAC			Do.
(U. S. S.) Colorado—any aircraft attached to.....	NMFA			Do.
(U. S. S.) Concord—any aircraft attached to.....	NMDK			Do.
(U. S. S.) Detroit—any aircraft attached to.....	NMKS			Do.
Fifteenth naval district—any aircraft attached to.....	NMGN			Do.
Fifth naval district—any aircraft attached to.....	NMGD			Do.
First naval district—any aircraft attached to.....	NMGA			Do.
Eighth naval district—any aircraft attached to.....	NMGJ			Do.
Eleventh naval district—any aircraft attached to.....	NMGL			Do.
(U. S. S.) Florida—any aircraft attached to.....	NMOT			Do.
Fourteenth naval district—any aircraft attached to.....	NMGQ			Do.
Fourth naval district—any aircraft attached to.....	NMGC			Do.
Guam naval district—any aircraft attached to.....	NMGS			Do.
Guantanamo naval district—any aircraft attached to.....	NMGT			Do.
(U. S. S.) Idaho—any aircraft attached to.....	NMCH			Do.
(U. S. S.) Jason—any aircraft attached to.....	NMAD			Do.
(U. S. S.) Langley—any aircraft attached to.....	NMVR			Do.
(U. S. S.) Lexington—any aircraft attached to.....	NMPO			Do.
(U. S. S.) Marblehead—any aircraft attached to.....	NMDF			Do.
(U. S. S.) Maryland—any aircraft attached to.....	NMDJ			Do.
(U. S. S.) Medusa—any aircraft attached to.....	NMWM			Do.
(U. S. S.) Memphis—any aircraft attached to.....	NMFL			Do.
(U. S. S.) Milwaukee—any aircraft attached to.....	NMWB			Do.
(U. S. S.) Mississippi—any aircraft attached to.....	NMHD			Do.
(U. S. S.) Nevada—any aircraft attached to.....	NMHC			Do.
(U. S. S.) New Mexico—any aircraft attached to.....	NMJK			Do.
(U. S. S.) New York—any aircraft attached to.....	NMKL			Do.
Ninth naval district—any aircraft attached to.....	NMKG			Do.
(U. S. S.) Oklahoma—any aircraft attached to.....	NMBF			Do.
(U. S. S.) Omaha—any aircraft attached to.....	NMQG			Do.
(U. S. S.) Patoka—any aircraft attached to.....	NMHB			Do.
(U. S. S.) Raleigh—any aircraft attached to.....	NMVC			Do.
(U. S. S.) Richmond—any aircraft attached to.....	NMNS			Do.
(U. S. S.) Saratoga—any aircraft attached to.....	NMUF			Do.
Seventh naval district—any aircraft attached to.....	NMGH			Do.
Sixteenth naval district—any aircraft attached to.....	NMGR			Do.
Sixth naval district—any aircraft attached to.....	NMGF			Do.
(U. S. S.) Tennessee—any aircraft attached to.....	NMLN			Do.
(U. S. S.) Texas—any aircraft attached to.....	NMAB			Do.
Third naval district—any aircraft attached to.....	NMGB			Do.
Thirteenth naval district—any aircraft attached to.....	NMGP			Do.
(U. S. S.) Trenton—any aircraft attached to.....	NMXA			Do.
Twelfth naval district—any aircraft attached to.....	NMGM			Do.
(U. S. S.) Utah—any aircraft attached to.....	NMVP			Do.
(U. S. S.) West Virginia—any aircraft attached to.....	NMNP			Do.
(U. S. S.) Wright—any aircraft attached to.....	NMND			Do.
(U. S. S.) Wyoming—any aircraft attached to.....	NMKN			Do.

Government aircraft stations, alphabetically, by call signals

Call signal	Name of station	Call signal	Name of station
NMAB	(U. S. S.) Texas—any aircraft attached to.	NMGS	Guam naval district—any aircraft attached to.
NMAC	(U. S. S.) Cincinnati—any aircraft attached to.	NMGT	Guantanamo naval district—any aircraft attached to.
NMAD	(U. S. S.) Jason—any aircraft attached to.	NMGY	(U. S. S.) Arizona—any aircraft attached to.
NMBC	(U. S. S.) California—any aircraft attached to.	NMHB	(U. S. S.) Patoka—any aircraft attached to.
NMBF	(U. S. S.) Oklahoma—any aircraft attached to.	NMHC	(U. S. S.) Nevada—any aircraft attached to.
NMCH	(U. S. S.) Idaho—any aircraft attached to.	NMHD	(U. S. S.) Mississippi—any aircraft attached to.
NMDF	(U. S. S.) Marblehead—any aircraft attached to.	NMHL	(U. S. S.) Arkansas—any aircraft attached to.
NMDJ	(U. S. S.) Maryland—any aircraft attached to.	NMJK	(U. S. S.) New Mexico—any aircraft attached to.
NMDK	(U. S. S.) Concord—any aircraft attached to.	NMKL	(U. S. S.) New York—any aircraft attached to.
NMFA	(U. S. S.) Colorado—any aircraft attached to.	NMKN	(U. S. S.) Wyoming—any aircraft attached to.
NMFL	(U. S. S.) Memphis—any aircraft attached to.	NMKS	(U. S. S.) Detroit—any aircraft attached to.
NMGA	First naval district—any aircraft attached to.	NMLN	(U. S. S.) Tennessee—any aircraft attached to.
NMGB	Third naval district—any aircraft attached to.	NMND	(U. S. S.) Wright—any aircraft attached to.
NMGC	Fourth naval district—any aircraft attached to.	NMNP	(U. S. S.) West Virginia—any aircraft attached to.
NMGD	Fifth naval district—any aircraft attached to.	NMNS	(U. S. S.) Richmond—any aircraft attached to.
NMGF	Sixth naval district—any aircraft attached to.	NMOT	(U. S. S.) Florida—any aircraft attached to.
NMGH	Seventh naval district—any aircraft attached to.	NMPO	(U. S. S.) Lexington—any aircraft attached to.
NMGJ	Eighth naval district—any aircraft attached to.	NMQG	(U. S. S.) Omaha—any aircraft attached to.
NMGK	Ninth naval district—any aircraft attached to.	NMUF	(U. S. S.) Saratoga—any aircraft attached to.
NMGL	Eleventh naval district—any aircraft attached to.	NMVC	(U. S. S.) Raleigh—any aircraft attached to.
NMGM	Twelfth naval district—any aircraft attached to.	NMVP	(U. S. S.) Utah—any aircraft attached to.
NMGN	Fifteenth naval district—any aircraft attached to.	NMVR	(U. S. S.) Langley—any aircraft attached to.
NMGP	Thirteenth naval district—any aircraft attached to.	NMWB	(U. S. S.) Milwaukee—any aircraft attached to.
NMGQ	Fourteenth naval district—any aircraft attached to.	NMWM	(U. S. S.) Medusa—any aircraft attached to.
NMGR	Sixteenth naval district—any aircraft attached to.	NMKA	(U. S. S.) Trenton—any aircraft attached to.

Special land stations, alphabetically, by names of stations

[Additions to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927]

Station	Call signal	Wave length (meters)	Frequency (kilocycles)	Power (watts)	Station controlled by—
Beacon, N. Y.	2XBU	61.22-63.83	4,900-4,700	100	H. E. Smith.
Chicago, Ill.	9XAG	61.22-63.83	4,900-4,700	1,000	Aero Products (Inc.).
East Pittsburgh, Pa.	8XAV	61.22-63.83	4,900-4,700	1,000	Westinghouse Electric & Manufacturing Co.
Lexington, Mass.	1XAY	61.22-63.83	4,900-4,700	500	J. Smith Dodge, Adams Street.
Long Island City, N. Y.	2XBT	131.6-140.2	2,280-2,140	1,000	F. L. Carter, 3978 Bliss Street
Los Angeles, Calif.	6XBW	131.6-140.2	2,280-2,140	250	P. S. Lucas, 422 Holland Avenue.
New York, N. Y.	2XBS	61.22-63.83	4,900-4,700	Variable.	R. C. A.
Portable	7XAP	75-150	4,000-2,000	10-50	Department of Agriculture, Forest Service.
Do.	7XAQ	75-150	4,000-2,000	10-50	Do.

Special land stations, grouped by districts

Call signal	District and station	Call signal	District and station
1XAY	First district: Lexington, Mass.	7XAP	Seventh district:
2XBS	Second district:	7XAQ	Portable.
2XBT	New York, N. Y.	8XAV	Do.
2XBU	Long Island City, N. Y.	9XAG	Eighth district: East Pittsburgh, Pa
6XBW	Beacon, N. Y.		Ninth district: Chicago, Ill.
	Sixth district: Los Angeles, Calif.		

ALTERATIONS AND CORRECTIONS**COMMERCIAL LAND STATIONS**

[Alterations and corrections to be made to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations published by the Berne bureau]

- AKRON, OHIO.—System, composite v. t. telegraph; w. l., add 15.167, 38.58.
 BIG PORT WALTER, ALASKA.—W. l., add 600, 731.
 BOLINAS, CALIF. (KEL).—W. l., 43.732.
 BOLINAS, CALIF. (KEMM).—System, R. C. A. v. t. telegraph; w. l., 19.367.
 BOLINAS, CALIF. (KEN).—System, R. C. A. v. t. telegraph; w. l., 43.828.
 BOLINAS, CALIF. (KEWE).—W. l., 38.885.
 BOLINAS, CALIF. (KMM).—System, R. C. A. v. t. telegraph; w. l., 14.437.
 BOLINAS, CALIF. (KUN).—System, R. C. A. v. t. telegraph; w. l., 16.611.
 BOLINAS, CALIF. (KWE).—W. l., 19.443.
 BOWLING GREEN, KY.—Owner of station, Illinois Pipe Line Co.
 BRISTOL BAY, ALASKA.—Strike out all particulars.
 CATANUAN, P. I.—Location (approximately) altitude 13° 14' 30".
 HILO, HAWAII.—W. l., add 52.45, 72.39.
 HONOLULU, HAWAII (KNN).—W. l., 17.222, 23.02, 27.75, 28.6, 33.08, 34.4, 37.14, 38.66.
 HONOLULU, HAWAII (KOG).—W. l., add 50.46, 74.18.
 KAUNAKAKAI, HAWAII.—System, add composite v. t. telegraph; w. l., add 52.45, 72.39.
 KILLISNOO, ALASKA.—W. l., add 900.
 KVICHAK, ALASKA (KYM).—W. l., add 86.
 LIHUE, HAWAII.—System, add composite v. t. telegraph; w. l., add 52.45, 72.39.
 MIAMI, FLA. (WRB).—W. l., 70.54.
 NUSHAGAK, ALASKA (KZV). W. l., add 86.
 PALO ALTO, CALIF. (KNW).—W. l., 16.429, 16.988, 23.08, 33.44, 33.9, 38.73, 44.02.
 PILLAR BAY, ALASKA.—W. l., drop 725.
 STEAMBOAT BAY, ALASKA.—W. l., 90.8, 600.
 UZINKI, ALASKA.—W. l., 600, 731.
 WAILUKU, HAWAII.—W. l., add 52.45, 72.39.
 WILMINGTON, CALIF. (Los Angeles).—Changed to Torrance, Calif. (Los Angeles); w. l., 2,343.

COMMERCIAL SHIP STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne bureau]

- ALASKA.—W. l., 600, 705, 800; station controlled by owner of vessel.
 ANNAPOLIS.—Range, 50; w. l., 600, 705; service, PG; rates, 8 cents per word.
 BEARPORT.—Name changed to Golden Mountain.
 BETTY R.—System, composite v. t. telegraph; w. l., 109, 600.
 CITY OF ROME.—Name changed to Veramar; owner of vessel, Sunnyland S. S. Co.
 CITY OF SPOKANE.—Name changed to Olympia; owner of vessel, Tacoma-Oriental S. S. Co.
 CLAREMONT.—W. l., 600, 705, 800.
 CURLEW.—Range, 25; system, composite v. t. telegraph; w. l., 53.57, 90.4; service, P; hours, X; station controlled by owner of vessel.

- DOYLESTOWN.—W. 1., 600, 705, 800.
- EASTERN VICTOR.—Name changed to Pacific Cedar.
- EL CICUTA.—Name changed to Texada; owner of vessel, Kingsley Navigation Co. of California.
- F. C. LATROBE.—Range, 100; w. 1., 600, 705; service, PG; rates, 8 cents per word.
- FOREST KING.—W. 1., 600, 705, 800; station controlled by owner of vessel.
- FRANK D. STOUT.—Range, 200; system, Gray & Danielson, 240 w. 1., 600, 705, 800; station controlled by owner of vessel.
- FREDELUCK C.—Range, 25; system, Western Electric v. t. telegraph; w. 1., 109.7; service, P; hours, X; station controlled by owner of vessel.
- G. N. WILSON.—Name changed to Thomas Britt.
- HUGH KENNEDY.—Owner of vessel, American S. S. Co.
- HYADES.—Owner of vessel, Red Salmon Canning Co.
- H. W. BAXTER.—System, Navy-Marconi, 1,000; w. 1., 600, 705, 800.
- LA BREA.—System, F. T. Co. arc; w. 1., 600, 705, 800, 1,887, 1,987, 2,098, 2,128.
- LAKE FARBER.—Name changed to Commercial Navigator; owner of vessel, Commercial Courier S. S. Co.
- LAKE GORIN.—W. 1., 600, 705, 800; rates, Great Lakes service, 4 cents per word; transoceanic, 8 cents per word.
- LAKE INGLENOOK.—Owner of vessel, Newtex S. S. Corporation.
- LAKE MIRAFLORES.—W. 1., 600, 705, 800; station controlled by M. R. T. Co.
- LANSING.—System, F. T. Co., arc and F. T. Co., spark, 1,000; w. 1., 600, 705, 800, 1,875, 1,987, 2,098, 2,190; hours, N.
- LA PURISIMA.—System, F. T. Co. arc; w. 1., 600, 705, 800, 1,875, 1,987, 2,098, 2,190.
- LAS VEGAS.—Owner of vessel, States S. S. Co.
- LAUREL.—W. 1., 600, 705, 800.
- LEVIATHAN.—W. 1., add 26.93, 26.95, 35.51, 35.59, 35.86.
- LOS ANGELES.—Range, 300; system, F. T. Co. arc; w. 1., 600, 705, 800, 1,911, 1,987, 2,098, 2,190.
- LUBRICO.—W. 1., 600, 705, 800, 1,875, 1,987, 2,098, 2,128.
- M. A. REEB.—Name changed to O. S. McFariand.
- MEMNON.—W. 1., 600, 705, 800, 2,098, 2,190; hours, N and X.
- MERIDA.—W. 1., 600, 705, 800.
- MIRAMICHI.—Name changed to Walucia III.
- NORTH KING.—System, Marconi, 1,000; w. 1., 600, 705, 800.
- ONEONTA.—Name changed to Sea King; owner of vessel, Shipowners & Merchants Tugboat Co.
- PETREL (WRBS).—Range, 25; system, Western Electric v. t. telegraph; w. 1., 109.7; service, P; hours, X; station controlled by owner of vessel.
- POINT BONITA.—Owner of vessel, Gulf Pacific Line.
- POINT SUR.—Owner of vessel, Gulf Pacific Line.
- PRESIDENT GRANT.—W. 1., 600, 705, 800, 1,887, 1,987, 2,098, 2,190.
- PRESIDENT MADISON.—W. 1., 600, 705, 800, 1,875, 2,098, 2,222, 2,440.
- RADIANT.—Range, 200; w. 1., 600, 705, 800.
- ROBERT JOHNSON.—W. 1. 600, 705, 800.
- SAN DIEGO.—W. 1., 600, 705, 800.
- SANTA MARIA (KFTI).—W. 1., 600, 705, 800, 1,887, 1,987, 2,098, 2,190.
- SIALIA.—Range, 200; w. 1., 600, 705, 800, 1,935, 1,987, 2,098, 2,128; rates, 4 cents per word.
- SIERRA (KRW).—W. 1., 600, 705, 800.
- SOLANA.—W. 1., 600, 705, 800, 1,875, 1,987, 2,098, 2,190.
- SUOLCO.—Owner of vessel, Matson Navigation Co.
- SUSHERICO.—Name changed to Manini.
- TILLICUM.—W. 1., 600, 705.
- TULSAGAS.—W. 1., 600, 705, 800, 1,875, 1,987, 2,098, 2,190.
- UTACARBON.—System, Marconi, 1,000; w. 1., 600, 705, 800.
- WARWICK.—W. 1., 600, 705, 800, 1,887, 1,987, 2,098, 2,128.
- WEST CAYOTE.—Name changed to Washington; owner of vessel, States S. S. Co.
- WEST CONOB.—Owner of vessel, Oceanic & Oriental Navigation Co.
- WEST FARALON.—Name changed to Golden Hind; owner of vessel, Oceanic & Oriental Navigation Co.
- WEST HIMROD.—Name changed to Bellingham.
- WEST KADER.—Name changed to New York; owner of vessel, States S. S. Co.
- WEST NIVARIA.—Name changed to Golden Coast.
- WEST PROSPECT.—Owner of vessel, Oceanic & Oriental Navigation Co.
- WEST SEQUANA.—Name changed to Golden Cloud; owner of vessel, Oceanic & Oriental Navigation Co.

WEST TOGUS.—Owner of vessel, Oceanic & Oriental Navigation Co.

WHEATON.—Name changed to Alaskan.

Strike out all particulars of the following-named vessels: *A. M. Scott, Arizonan, Commercial Pilot, Concho, Finland* (KSF), *Kershaw, Ransom B. Fuller, Republic* (WSU), *Venetia, William F. Herrin*.

COMMERCIAL LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

KDDQ, read Manini; KDIY, read Texada; KDSX, read Golden Hind; KDUX, read Thomas Britt; KDUZ, read O. S. McFarland; KFCS, read Walucia III; KILL, read Olympia; KIRB, read Commercial Navigator; KIRF, read Washington; KOSL, read New York; KQZ, read Veramar; KUBK, read Golden Mountain; KUDQ, read Bellingham; KUNR, read Pacific Cedar; KUQJ, read Golden Coast; WMUA, read Alaskan; WPX, read Sea King; WSOI, read Golden Cloud; strike out all particulars following the call signals KEC, KFSF, KGGR, KPF, KQK, KRF, KSF, WKB, WOV, WSU, WTN.

COMMERCIAL AIRCRAFT STATIONS, ALPHABETICALLY, BY NAMES OF VESSELS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

SPIRIT OF CALIFORNIA.—(KHAB—renamed Southern Cross), strike out all particulars.

BROADCASTING STATIONS, BY CALL SIGNALS

[Alterations and corrections to be made to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927]

KFON (Long Beach, Calif.).—Power, 1,000.
 KFPW (Cartersville, Mo.).—Changed to Suplhur Springs, Ark.
 KFYO (Breckenridge, Tex.).—Power, 100.
 KGEK (Yuma, Colo.).—Power, 50.
 KGHM (Billings, Mont.).—Power, 500 day, 250 night.
 KOB (State College, N. Mex.).—Power, 10,000 day only.
 KPJM (Prescott, Ariz.).—Now permanently located.
 KSTP (Westcott, Minn.).—Power, 5,000, for experimental use during June and July.
 WCBA (Allentown, Pa.).—Owner, B. Bryan Musselman.
 WKEN (Amherst, N. Y.).—Changed to Grand Island, N. Y.
 WLBN (Little Rock, Ark.).—Call changed to KLRA.
 WMAQ (Chicago, Ill.).—Power, 5,000.
 WRBT (Wilmington, N. C.).—W. 1., 227.1; fy., 1,320.
 WVVA (Wheeling, W. Va.).—Owner, West Virginia Broadcasting Corporation. Strike out all particulars of the following-named stations: KGHP (Hardin, Mont.), WEBJ (New York, N. Y.), WLBM (Cambridge, Mass.).

GOVERNMENT LAND STATIONS, ALPHABETICALLY, BY NAMES OF STATIONS

[Alterations and corrections to be made to the list of Commercial and Government Radio Stations of the United States, edition of June 30, 1927, and to the International List of Radiotelegraph Stations, published by the Berne Bureau]

BAR HARBOR, ME. (Seawall—NBD).—Strike out all particulars.

GOVERNMENT LAND AND SHIP STATIONS, ALPHABETICALLY, BY CALL SIGNALS

NBD, BAR HARBOR, ME. (Seawall).—Strike out all particulars.

SPECIAL LAND STATIONS, BY NAMES OF STATIONS

[Alterations and corrections to be made to the List of Radio Stations of the United States, edition of June 30, 1927]

BABYLON, N. Y. (2XC).—Owner, Radiomarine Corporation of America.
 LOS ANGELES, CALIF. (6XBA).—Strike out all particulars.
 LOS ANGELES, CALIF. (6XBC).—Strike out all particulars.
 WASHINGTON, D. C. (3XK).—W. 1., 61.22–63.83, 131.6–140.2; fy., 4,900–4,700, 2,280–2,140.

MISCELLANEOUS

CHANGES IN RADIOBEACON STATIONS OF THE UNITED STATES

Little Gull Island Light Station, N. Y.—Beacon changed to operate continuously during thick or foggy weather and daily in clear weather from 11 p. m. to 1 a. m. and from 12 noon to 12.30 p. m., seventy-fifth meridian time.

Stratford Shoal (Middle Ground) Light Station, N. Y.—Beacon changed to operate continuously during thick or foggy weather and daily in clear weather from 2 to 3.30 a. m., 12 noon to 12.30 p. m., and from 8 to 10 p. m., seventy-fifth meridian time.

Execution Rocks Light Station, N. Y.—Beacon changed to operate continuously during thick or foggy weather and daily in clear weather from 5 to 6.30 a. m., 12 noon to 12.30 p. m., and 6.30 to 7.30 p. m., seventy-fifth meridian time.

EXAMINATION OF RADIO OPERATORS IN CANAL ZONE DISCONTINUED

Beginning July 1, 1928, the examination of radio operators at the naval stations in the Canal Zone will be discontinued.

NEW CALL SIGNALS ASSIGNED TO LAND AND SHIP STATIONS

Under article 14 of the International Radiotelegraph Convention, Washington, 1927, requiring land and ship stations to use only three and four letter call signals, respectively, the stations named hereunder should use the new call signals shown in the column headed "To," beginning October 1, next. While the requirements of the convention are not actually effective until January 1, 1929, it has been deemed advisable to make the change as of October 1, in order to take advantage of having the new signals published in the fall edition of the "International List of Radiotelegraph Stations Alphabetically by Call Signals," and the June 30, 1928, edition of the list of "Commercial and Government Radio Stations of the United States."

Commercial land stations, alphabetically, by names

Name of station	Call signal		Name of station	Call signal	
	From—	To—		From—	To—
Annette Island, Alaska.....	KGAF	KFA	Nushagak, Alaska.....	KKAE	KNO
Anniston (moored vessel).....	KIDM	WPK	Pilot Point, Alaska.....	KUDT	KUL
Bacharof, Alaska.....	KUDV	KUD	Pirate Cove, Alaska.....	KOXN	KOX
Baytown, Tex.....	KDPS	KJV	Point Barde, Alaska.....	KGGB	KLH
Bolinas, Calif.....	KEMM	KEM	Portable.....	KGEV	KNB
Do.....	KESB	KES	Do.....	KGFT	KNC
Do.....	KEWE	KEE	Do.....	KGFT	KND
Do.....	KEUN	KEN	Do.....	KGFB	KNE
Bowling Green, Ky.....	WJAV	WJA	Do.....	KGFR	KNF
California (portable).....	KGGP	KLC	Quincy, Mass.....	KDQU	WPC
Cascada, Calif.....	KDPU	KLF	Rocky Point, N. Y.....	WEAJ	WEJ
Charleroi, Pa.....	WJBF	WBV	Do.....	WEDS	WES
Cheboygan, Mich.....	KUXM	WPJ	Do.....	WEEM	WKM
Chicago, Ill.....	WCFL	WCF	Do.....	WEFX	WEF
Dallas, Tex.....	WFAA	KFB	Do.....	WEHR	WER
Daly, Alaska.....	KDJT	KDJ	Do.....	WELL	WEL
Detroit, Mich.....	KDPH	WBM	Do.....	WEOP	WKP
Do.....	WDYC	WCZ	Do.....	WEPE	WEE
East Pittsburgh, Pa.....	KDKA	WKA	Do.....	WEQA	WEA
Harrisburg, Pa.....	WBAK	WBA	Do.....	WEQB	WEB
Do.....	WKBX	WKB	Do.....	WEQC	WEC
Hyder, Alaska.....	KDFA	KDF	Do.....	WEQK	WEX
Flagstaff, Ariz.....	KGGC	KLU	Do.....	WEQY	WIY
Flagstaff, Ariz. (portable).....	KGGD	KLV	Do.....	WQO	WKO
Fort Worth, Tex.....	WBAP	KMB	Ruby (moored vessel).....	KDRH	KDR
Hawk Inlet, Alaska.....	KKAI	KPD	San Benito, Tex.....	KFWR	KFW
Johnswood, Mich.....	KUVQ	WMF	San Juan, P. R.....	WEGT	WJT
Kahuku, Hawaii.....	KEIO	KRO	Santa Barbara, Calif.....	KGFY	KHR
Do.....	ESIO	KKH	Santa Cruz Island, Calif.....	KGFD	KGJ
Keke, Alaska.....	KGAG	KGP	Superior, Mich.....	KDPI	WRH
Koggiung (moored vessel).....	KUBX	KUB	Tenakee, Alaska.....	KOSC	KOU
Lazy Bay, Alaska.....	KEPS	KPS	Warren, Alaska.....	KDJU	KHU
Marysville, Mich.....	KDPJ	WPV	Zachar Bay, Alaska.....	KFWQ	KFX
New York, N. Y.....	KUVS	WPY			

Commercial land stations, alphabetically, by call signals

Call signal		Station	Call signal		Station
To--	From--		To--	From--	
KDF	KDFA	Hyder, Alaska.	KUB	KUBX	Koggiung (moored vessel).
KDJ	KDJT	Daly, Alaska.	KUD	KUDV	Bacharof, Alaska.
KDR	KDRH	Ruby (moored vessel).	KUL	KUDT	Pilot Point, Alaska.
KEE	KEWE	Bolinas, Calif.	WBA	WBAK	Harrisburg, Pa.
KEM	KEMM	Do.	WBM	KDPH	Detroit, Mich.
KEN	KEUN	Do.	WBV	WJBF	Charleroi, Pa.
KES	KESS	Do.	WCF	WCFL	Chicago, Ill.
KFA	KGAF	Annette Island, Alaska.	WCZ	WDYC	Detroit, Mich.
KFB	WFAA	Dallas, Tex.	WEA	WEQA	Rocky Point, N. Y.
KFW	KFWR	San Benito, Tex.	WEB	WEQB	Do.
KFX	KFWQ	Zachar Bay, Alaska.	WEC	WEQC	Do.
KGJ	KGFU	Santa Cruz Island, Calif.	WEE	WEPE	Do.
KGP	KGAD	Kaka, Alaska.	WEF	WEFX	Do.
KHR	KGFY	Santa Barbara, Calif.	WEJ	WEAJ	Do.
KHU	KDJU	Warren, Alaska.	WEL	WELL	Do.
KJV	KDPS	Baytown, Tex.	WER	WEHR	Do.
KKH	KSIO	Kahuku, Hawaii.	WES	WEDS	Do.
KLC	KGGP	California (portable).	WEX	WEQX	Do.
KLF	KDPU	Cascada, Calif.	WIY	WEQY	Do.
KLH	KGGB	Point Warde, Alaska.	WJA	WJAV	Bowling Green, Ky.
KLU	KGGC	Flagstaff, Ariz.	WJT	WEGT	San Juan, P. R.
KLV	KGGD	Flagstaff, Ariz. (portable).	WKA	KDKA	East Pittsburgh, Pa.
KMB	WBAP	Fort Worth, Tex.	WKB	WKBX	Harrisburg, Pa.
KNB	KGEV	Portable.	WKM	WEEM	Rocky Point, N. Y.
KNC	KGET	Do.	WKO	WQO	Do.
KND	KGFT	Do.	WKP	WEOP	Do.
KNE	KGFS	Do.	WMP	KUVQ	Johnswood, Mich.
KNF	KGFR	Do.	WPC	KDGM	Quincy, Mass.
KNO	KKAE	Nushagak, Alaska.	WPJ	KUXM	Cheboygan, Mich.
KOU	KOSO	Tenakee, Alaska.	WPK	KIDM	Anniston (moored vessel).
KOX	KOKN	Pirate Cove, Alaska.	WPV	KDPJ	Marysville, Mich.
KPD	KKAI	Hawk Inlet, Alaska.	WPY	KUVS	New York, N. Y.
KPS	KEPS	Lazy Bay, Alaska.	WRH	KDPI	Superior, Mich.
KRO	KEIO	Kahuku, Hawaii.			

Commercial ship stations, alphabetically, by names

Name of vessel	From--	To--	Name of vessel	From--	To--
Abangarez.....	KDI	KDAI	Ann Arbor No. 5.....	WDP	WDOP
A. C. Bedford.....	KNZ	WOCJ	Ann Arbor No. 6.....	WDQ	WDCQ
Achilles.....	KPT	WHCS	Ann Arbor No. 7.....	WDK	WDCK
Acme.....	KIJ	WBCF	Annetta.....	WRG	WEDP
Admiral Dewey.....	WAY	WGCA	Antilla.....	KWD	WECS
Admiral Evans.....	KICZ	WGCB	Any or all merchant vessels.....	WKW	WBGV
Admiral Farragut.....	WAF	WGCC	Apache.....	KVA	WBCA
Admiral Fiske.....	WGS	WGCD	Arapahoe.....	KVB	WBCB
Admiral Moser.....	WDF	WGCE	Archer.....	KXG	WLCQ
Admiral Peary.....	KPL	WGCF	Arctic.....	KYS	WQCM
Admiral Rodman.....	WOA	WGCG	Ardmore.....	KIA	WBCQ
Admiral Rogers.....	WGE	WGCH	Arizona.....	WFG	WPCU
Admiral Schley.....	WAZ	WGCI	Artemis.....	WQS	WEDL
Admiral Sebree.....	WAG	WGCI	Ashtabula.....	WEZ	WBDG
Admiral Watson.....	WAW	WGCK	Astral.....	KIQ	WSCG
Agwidale.....	WDOA	WHCA	Atenas.....	KDK	KDAK
Agwistar.....	KEPG	WEOR	Atlantic.....	KEE	WBCO
Alabama.....	WFB	WPCT	Atlas.....	KWP	WSCH
Alameda.....	WAA	WCCQ	Avalon.....	WFH	WQCV
Albert Hill.....	KHR	WFCV	Bantu.....	KLM	WDCU
Aleutian.....	KMH	WCOR	Belfast.....	KRD	WECA
Aloha.....	KYH	WLOU	Benjamin Brewster.....	KPS	WOCK
Alpena.....	WCS	WADU	Beta.....	WQD	WEDB
A. M. Byers.....	WMY	WADD	Bethlehem.....	WLW	WCDR
Amelia.....	WRF	WEDO	Big Bill.....	WHU	WBDX
American.....	WKF	WACA	Black Point.....	KXT	WFDH
American Banker.....	WEC	WBDA	Boston.....	WEL	WECB
American Farmer.....	WEG	WBDB	Bowdoin.....	WNP	WDDE
American Merchant.....	WTP	WFDF	Brazos.....	KKZ	WHCB
American Shipper.....	WTB	WEDZ	Bremerton.....	WSZ	WEDY
American Trader.....	WTU	WFDC	Broad Arrow.....	KSY	WSCJ
Amolco.....	KMB	WCCD	Cabrillo.....	WBV	WADK
Ancon.....	KMS	WCCI	C. A. Canfield.....	WIH	WPCA
Ann Arbor No. 3.....	WDN	WDCN	Cacique.....	WBE	WMCQ
Ann Arbor No. 4.....	WDO	WDCO	Caddo.....	KSK	WOCL

Commercial ship stations, alphabetically, by names—Continued

Name of vessel	From--	To--	Name of vessel	From--	To--
Calamares	KLO	KDAW	Delecto	KYT	WNCP
California	WRS	WMCW	D. G. Scofield	WRD	WOWA
Californian	KDYD	WACB	Dirie	KGGQ	WICO
Caloria	KSP	WKCP	Dodeca	KXO	WLCR
Calvin Austin	KRN	WECC	Dorothy Alexander	WGP	WGCM
Camaguey	KWI	WECT	Dorothy Bradford	KNA	WFDK
Cambria	WPY	WDDY	Dulcino	KTV	WKCU
Cambridge	KGR	WBCE	Eagle	KIR	WSCL
Camden	KRO	WECD	Eastern States	WEE	WTCB
Captain A. F. Lucas	WTV	WOOB	Ecuador	WBN	WNOW
Carabobo	WCN	WQCH	Edgar F. Luckenbach	KGK	WLCA
Caracas	KDB	WQCA	Edith	KZF	WKCD
Carolina	WFE	WPCV	Edna Christanson	WSJ	WEDV
Carolyn	KZG	WKCA	Edward L. Doheny	WIE	WPCC
Carrillo	KDE	KDAE	Edward Luckenbach	KGQ	WLCB
Cartago	KDD	KDAA	Edwin Christenson	KJH	WCCG
Casiana	KYE	WLCT	El Alba	KKL	WICD
C. A. Snider	KRR	WQCS	El Almirante	KKG	WICE
Castle Town	KOF	WHCO	El Capitan	KKH	WICF
Cauto	KWF	WEOU	El Cid	KKT	WICG
C. B. Watson	KTN	WFDI	El Coston	KFSL	WICH
Celilo	WME	WCDU	El Dia	KKY	WICI
Central West	WPW	WDDV	El Estero	KDKT	WICI
Charles E. Harwood	WID	WPCB	El Isleo	KDNA	WICK
Charles Pratt	KSQ	WOCM	El Lago	KDNW	WICL
Charlton Hall	KLU	WDCV	El Mundo	KKU	WICM
Cherokee	WEO	WTCI	El Norte	KKN	WICN
Chester Sun	WAS	WPCS	El Occidente	KKX	WICP
Chester W. Chapin	KXQ	WRCQ	El Oceano	WNF	WICO
Chincha	KJZ	WOCF	El Oriente	KKV	WICQ
Christopher Columbus	WFJ	WPCW	El Segundo	WTQ	WOCO
Cities Service Fuel	KNS	WHOP	El Siglo	KKS	WIOC
City of Albany	KOFQ	WFCI	El Valle	KKW	WIOS
City of Atlanta	KFB	WFCJ	Emma Alexander	KKEE	WIGN
City of Bangor	KRH	WECM	Enterprise	WMN	WMOB
City of Benton Harbor	WDV	WPCX	Eocene	KTM	WSCO
City of Birmingham	KFKC	WFCK	Ernest H. Meyer	WMJ	WCDX
City of Buffalo	WFQ	WTCR	E. R. Sterling	WIS	WCDA
City of Chattanooga	KFMA	WFCL	Esparta	KDO	KDAO
City of Cleveland III	WEA	WNCM	Essex	KQE	WMOB
City of Columbus	KFA	WFCM	Eurana	KJG	WCOF
City of Detroit III	WEP	WNCN	Evelyn	KZP	WKCE
City of Erie	WFP	WTCB	Everett	KZT	WJCC
City of Honolulu	WES	WSCS	Fabis	WJJ	WODO
City of Lowell	KXB	WRCB	Favorite	WCF	WADP
City of Montgomery	KFY	WFCN	Fayette Brown	WQG	WEDF
City of St. Louis	KFX	WFCP	Felix Tausig	KXZ	WJCR
City of Savannah	KFK	WFCQ	Feltore	KFG	WQCU
City of Seattle	WGA	WBDK	Firmore	KDK	WQCF
Clare	KNE	WKOY	Fisherman	KNT	WHCN
Clemens A. Reiss	WNH	WADE	F. J. Luckenbach	WNZ	WLCO
Coamo	WTA	WKCW	Florence Luckenbach	WNM	WLGI
Coastwise	KUZ	WKCY	Florence Olson	WRI	WEDQ
Colombia	WBH	WNCT	Floridaia	WLR	WAOE
Colonel	WPT	WDDS	F. Q. Barstow	KNQ	WOCN
Colorado	KUGL	WHCC	Frank H. Buck	WTO	WQCO
Columbian	WBA	WACC	Fred Baxter	WOG	WDDH
Comal	KEM	WHCD	Frederic Ewing	WNQ	WPOD
Comerio	KWN	WFCB	Frederic R. Kellogg	WIQ	WPCE
Commercial Courier	KWJ	WLCP	Fred W. Weller	KNY	WOCO
Commercial Guide	WJO	WCDD	Freeman	WMM	WBIO
Commercial Pathfinder	WJU	WCDE	Freeport Sulphur No. 2	KRG	WHCY
Commercial Trader	WMZ	WDDO	Frieda	KFF	WQCT
Commonwealth	KXC	WRCC	Gene Crawley	KQF	WHCW
Comus	KKD	WICA	General W. C. Gorgas	KIP	WQCZ
Concord	KNC	WRCY	George G. Henry	WIT	WPCF
Conneaut	WCU	WADV	George Washington	WFR	WECJ
Coppename	KDF	KDAF	Georgian	KOVH	WACF
Cordova	WAR	WCOB	Glenpool	KOH	WOCF
Cornelia	KZD	WKCO	Gloucester	KQG	WMCT
Coronado	WFZ	WBDJ	Gold Shell	WIB	WBCY
Corsair	KYC	WLCS	Goodtime	WCP	WTCU
Costa Rica	WQI	WEDJ	Governor Cobb	KRB	WHCX
Creole	KKR	WEDN	Governor Dingley	KRV	WECE
Creole	WRA	WICB	Greater Buffalo	WJA	WSBH
Cristobal	KMD	WCOH	Greater Detroit	WJT	WSBI
Crofton Hall	KLR	WDCW	Greecian	KQR	WMCU
Curacao	WGK	WGCL	Guardian	WGZ	WBDP
Currier	KNU	WJCA	Gulboast	KUE	WJCC
Cythera	KYO	WLCY	Gulfhand	KUD	WJOD
Dakotan	WKD	WACD	Gulflight	KUA	WJCE
Dauntless	KYR	WLCZ	Gulfmaid	KUB	WJCF
D. E. Callender	WVY	WBDP	Gulf of Mexico	KUC	WJOB

Commercial ship stations, alphabetically, by names—Continued

Name of vessel	From—	To—	Name of vessel	From—	To—
Gulfoil	KTG	WJCG	Macom	KIN	WBCD
Gulf Queen	KVS	WJCH	Mahoe	KZR	WNCR
Gulfstream	KTB	WJCI	Maine	KUQ	WCKX
Halcyon	KZL	WNOQ	Maitland No. 1	WLE	WCDJ
Hamilton	KFAM	WBEK	Makiki	WGW	WMCD
Harold Walker	WIX	WPCG	Malabar	KTO	WKR
Harry Farnum	KQA	WHCU	Malolo	KII	WMCE
Harry W. Croft	WQF	WEDD	Manchuria	WWE	WCCM
Harvard	WRH	WSCR	Mangore	KHP	WQCG
Harvey H. Brown	WQE	WEDO	Manitou	WFW	WBDH
Hatteras	WNV	WDDF	Manoa	WMQ	WMCF
Hawaiian	WKU	WACG	Maracaibo	KIM	WQCB
Hawaiian Standard	WTX	WOCB	Margaret	KZO	WCKB
H. C. Folger	KHS	WFCW	Marquette and Bessemer No. 2	WEX	WFDQ
Helen	KZH	WKOF	Maryland	WLU	WCDQ
Henry M. Flagler	KOX	WCOK	Matinicoek	KID	WBCT
Henry R. Mallory	KEF	WHCF	Matsonia	WMP	WMCG
Herbert G. Wylie	WIF	WPGH	Maul	WMR	WMCH
Herbert L. Pratt	KOY	WFCX	Medina	KEI	WHCG
Heredia	KDH	KDAH	Melrose	KZW	WJCU
H. F. Alexander	KDYK	WGOO	Metapan	KLF	KDAY
H. H. Rogers	KSI	WOCQ	Mexican	WKL	WACK
Hilton	KZK	WCKG	Mexico	KWX	WECV
H. M. Flagler	KER	WOCR	Miami	KOZ	WHCR
Horace X. Baxter	WOF	WDDG	Millinocket	KNM	WKCI
Howard	KQH	WMCV	Minnesota	WFM	WQCY
Howick Hall	KLT	WDCX	Missosotan	WKM	WACL
Humboldt	WHX	WBDZ	Missouri	WFD	WFDT
Huron	KVH	WADQ	Missourian	KFAA	WACM
Huron	WCH	WBOC	Mohawk	KXE	WROE
Hyades	WMK	WCDY	Mohegan	KXM	WRCM
Illinois	WCZ	WPOY	Momus	KKM	WICT
Indiana	WFC	WPCZ	Mongolia	WVN	WCCN
Iowan	WKJ	WACH	Montanan	WKN	WACN
Iris	WOJ	WDDI	Monterey	KWY	WEOV
Isaac T. Mann	KOU	WBCJ	Mount Baker	KEN	WQCN
J. A. Bostwick	KJN	WOCB	Mount Hope	KOL	WHCQ
James McGee	KTP	WOCT	Multnomah	WMA	WODT
J. A. Moffett	WRE	WOCI	Munaires	WJN	WNCA
J. C. Donnell	WJM	WFOE	Munabro	KGX	WNOB
J. C. Fitzsimmons	WFA	WOCB	Munamar	KUI	WNCO
Jeanette Skinner	WQW	WEDM	Munbeaver	KRE	WKO
Jefferson	KOD	WECL	Mundelta	KUF	WNCD
J. E. O'Neil	KSB	WPCZ	Munindies	KVE	WNCE
J. M. Danziger	WIW	WPCI	Munisla	KJO	WNOF
John Anderson	WPZ	WDDZ	Munorleans	KMZ	WNCG
John McCartney Kennedy	WPI	WDDN	Munplace	KUG	WNCH
John W. Ailes	WPK	WDDO	Munrio	KVD	WNCI
Joseph R. Parrott	KJP	WCCJ	Munsomo	KUK	WN CJ
Julia Luckenbach	KGZ	WLCD	Muskogee	KIB	WBCR
Juniata	KQJ	WMCW	Mystic	KHZ	WBCT
Juniata	WCB	WADM	Nantucket	KQN	WMCY
Kanak	KOT	WQCW	Nebraskan	WMV	WACO
Kansan	KQII	WACI	Nelson	KNL	WHCM
Katrina Luckenbach	KWU	WLCF	Nevadan	WLZ	WACP
Kentuckian	WKE	WACJ	New Hampshire	KXF	WROF
K. I. Luckenbach	KHY	WLCE	New Haven	KXN	WRCN
Kvichak	WNS	WQCP	Newport	WWH	WFD
La Brea	WON	WFDM	Newton	KZX	WJCV
Lackawanna	WLT	WCDP	New York	KUW	WBCG
Lake Charles	KHW	WBCM	New York	WJK	WECF
Lakina	WNB	WCCT	Nizina	WAE	WCCY
Lansing	WTC	WFDA	Norman Bridge	WIG	WPCJ
La Perla	KFYS	KDCK	North American	WEN	WTBA
Latouche	WAI	WCCU	North Land	KJD	WECG
Lebanon	WLK	WFDS	Northwestern	WAN	WCCW
Lehigh	WLN	WCCN	Norwood	WSG	WEDT
Lemuel Burrows	KLY	WJCS	Noyo	WRJ	WEDR
Leviathan	WSN	WSBN	Oakley L. Alexander	WFF	WBCK
Levisa	KDL	KDAL	Octorara	WCD	WADO
Lewis K. Thurlow	KXY	WJCT	Ohloan	WKQ	WACQ
Lexington	KNB	WRCZ	Oleum	WTD	WFDQ
Libby Maine	KDV	WQCB	Oneida	KYP	WL CX
Ligonier	KTD	WJCI	Ontario	KQO	WMCZ
Lillian Luckenbach	KNK	WLGG	Oregon	WGD	WBDN
Limon	KDR	KDAB	Oregonian	WKO	WACR
L. J. Drake	WZAA	WOCU	Orizaba	KMEI	WECX
Los Alamos	KRO	WSCP	Ormidale	WGB	WB DL
Los Angeles	WOL	WF DN	Oscar D. Bennett	WIV	WPCK
Louisiana	KUL	WBCF	Otsego	WDG	WQCJ
Lurline	WML	WMCC	O. T. Waring	KJW	WOCV
Lynford E. Gear	WNG	WADF	Owego	KFQ	WQCX
M. A. Bradley	WQH	WEDG			

Commercial ship stations, alphabetically, by names—Continued

Name of vessel	From—	To—	Name of vessel	From—	To—
Panaman	WKR	WACS	Seminole	WAK	WNXC
Panuco	KWM	WECY	S. B. Coolidge	WHH	WBDO
Parimina	KDG	KDAG	S. B. Way	WPO	WDDF
Pastores	KLA	KDBD	Seeandbee	WFS	WTCT
Paul Luckenbach	WLY	WLCH	Senator	WPV	WDDU
Paulsboro	KRS	WKCL	Senator Bailey	KGS	WJCM
Pearl Shell	WIC	WBCZ	Sewalls Point	KGX	WJOW
Peary	WAP	WPCR	Sierra	WFY	WBDI
Pecos	KKQ	WHCH	Siboney	WRN	WECZ
Pennsylvania	KUP	WKCV	Sierra	WHJ	WBDR
Pennsylvanian	WKP	WACT	Sierra	KRW	WKCM
Pequonnock	KXP	WRCP	Silver Shell	WIA	WBCX
Pere Marquette 15	WDA	WDCA	Sisaula	KDS	KDAQ
Pere Marquette 17	WDC	WDCG	Skagway	WAT	WPQQ
Pere Marquette 18	WDD	WDCD	S. M. Spalding	WKG	WPCM
Pere Marquette 19	WDB	WDCB	S. O. Co. No. 93	WTF	WOCG
Pere Marquette 20	WDE	WDC E	S. O. Co. No. 95	WTZ	WOCH
Pere Marquette 21	KFTA	WDC F	Socony	KTX	WBCV
Pere Marquette 22	KFUD	WDCG	Sonoma	WHM	WBDT
Peter Reiss	WNX	WADG	South American	WJW	WGCW
Philip D. Block	WKC	WCDG	Standard	KIC	WOCZ
Pioneer	KIG	WOCW	Standard Arrow	KSV	WBCW
Plymouth	KND	WCCL	Stanley Dollar	WLM	WCDM
Plymouth	KXH	WRCH	Star of Zealand	KDW	WQCE
Point Loma	WAO	WFDU	Starr	WPS	WDDR
Polarine	KOI	WOCX	Steelton	WLX	WCDS
Ponce	KGP	WFCB	Stephen R. Jones	KXX	WJCX
Porto Rico	WJG	WFCO	Suriname	ELI	KDBO
Princess Montagu	WGQ	WBDO	Sylvan Arrow	ESX	WBCX
Princeton	KST	WOCY	Tamashua	KDVA	WICU
Priscilla	KXI	WBCI	Tampa	KVK	WLDM
Providence	KXJ	WRCJ	Texas	WKT	WACU
Puget Sound	WER	WBDD	Texas	KUM	WBCH
Puritan	WDU	WADX	The Harvester	WCE	WADS
Queen	WXG	WGCP	Tiger	KIT	WBCY
Radiant	KTR	WFDP	Tillamook	WHP	WBDU
Rajah	WAO	WNCZ	Tionesta	WCA	WADL
Rayo	KTL	WSCQ	Tivives	KMI	KDCD
Redman	WEB	WADZ	Topila	KKE	WICV
Redondo	WBM	WCCX	Torres	KKF	WICW
Redwood	WSD	WEDS	Trinidadian	KNO	WJCK
Relay	KVZ	WLCO	Trujillo	KHU	WQCL
Relief	KRJ	WHCZ	Turrialba	KDT	KDAU
Republic	WSU	WEDX	T. W. Robinson	WMX	WDDB
Republic	KSN	WTOW	Tyee	WPC	WDDM
Resolute	KRM	WKCN	Ulysses	KPU	WHCT
Restorer	WIU	WDCB	Vega	KYO	WLCO
Richard J. Reiss	WNE	WADH	Velero II	WHV	WBDY
Richard Peck	KXR	WRCR	Venezuela	WBG	WBCS
Richfield	KTI	WKCC	Ventura	WHL	WBDS
Richmond	WTR	WOCF	Veramar	WFCC	KQZ
Robert E. Lee	WDT	WTCH	Vesta	KTS	WBCZ
Robert P. Clark	KTH	WJCN	Victoria	WAD	WOCY
Rosamond	KZZ	WNCU	Virginia	KUV	WKCY
Rose City	WWR	WFDG	Virginia Express	KDJE	WECH
Royal Arrow	KSW	WSCU	Virginia Limited	WEL	WBCI
Ruth	KZQ	WECJ	Virginian	WKV	WACV
Ruth Alexander	WDR	WADW	Waban	KJT	WBCU
R. W. Stewart	WIJ	WPCL	Wabash	WDL	WDCI
Sabine Sun	WLQ	WCDO	Wahkeena	WMS	WCDZ
Samuel Mitchell	WEJ	WBDC	Walter D. Munson	KVJ	WNCK
San Francisco	KRT	WDCY	Walter D. Noyes	KDY	WJCY
San Jacinto	KES	WHCI	Wapama	WMG	WCDV
San Jose	KDJ	KDAJ	W. C. Teagle	KTY	WBCB
San Juan	KGJ	WPCD	West Arrow	WKS	WCDH
San Juan	WWM	WFDE	West Celeron	KKJ	WCCB
San Lorenzo	KEZ	WFCE	Westerner	KIK	WBCS
San Mateo	KLV	KDBE	Western States	WED	WTCA
San Pedro	WMT	WDDA	West Gotomska	WET	WBDE
Santa Ana	WAL	WNCY	West Haven	KJV	WBCV
Santa Ana	WBX	WADT	Westlake	WTH	WFDB
Santa Cecilia	WIN	WBDW	Westland	KJX	WBCU
Santa Cecilia	WBB	WNCO	Westward Ho	WKX	WDCI
Santa Cruz	WBD	WMCP	W. F. Burrows	WHG	WQCK
Santa Inez	WBI	WEDU	W. F. White	WGC	WBDM
Santa Marta	KLG	KDBI	W. H. Tilford	KPD	WSCC
Santa Rosalia	KLO	WDCZ	Wheaton	WMUA	WACW
Santore	KDQ	WQCC	Wilhelmina	WMO	WBCI
Saramacca	KLH	KDBK	Williamette	WSW	WCDW
Saucun	WBK	WC DK	Willabee	WLJ	WCDL
Saucun	WLH	WQCO	William A. McKenney	WOM	WJ CZ
Saugerties	WAB	WNCV	William A. Reiss	WNI	WADI
Sea King	WPX	WDDX	William C. Atwater	WPB	WDDL

Commercial ship stations, alphabetically, by names—Continued

Name of vessel	From—	To—	Name of vessel	From—	To—
William G. Mather.....	WBS	WADJ	Wyandotte.....	WCO	WADR
William Green.....	WY	WPCN	Yale.....	WRY	WSCT
William Isom.....	KVY	WLCN	Yosemite.....	WPU	WDDT
Wilson.....	KEJ	WBOL	Yukon.....	KMX	WCCZ
Winifred.....	KTE	WJOL	Zacapa.....	KLE	KDCI
W. L. Connelly.....	KQB	WHOV	Zapora.....	WPQ	WDDQ
Wm. G. Warden.....	KNF	WBCD	Tropical Radio Telegraph Co. (general call).....	KUS	KUFO
W. M. Tupper.....	WDW	WADY			
W. R. Chamberlain, jr.....	WHS	WBDV			

Commercial ship stations, alphabetically, by call signals

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
KDAA	KDD	Cartago.	WADQ	KVH	Huron.
KDAB	KDE	Limon.	WADR	WCO	Wyandotte.
KDAE	KDE	Carrillo.	WADS	WCR	The Harvester.
KDAF	KDF	Coppename.	WADT	WBX	Santa Ana.
KDAG	KDG	Parismina.	WADU	WCS	Alpens.
KDAH	KDH	Heredia.	WADV	WCU	Conneaut.
KDAI	KDI	Abangarez.	WADW	WDR	Ruth Alexander.
KDAJ	KDJ	San Jose.	WADX	WDU	Puritan.
KDAK	KDK	Atenas.	WADY	WDW	W. M. Tupper.
KDAL	KDL	Levisa.	WADZ	WEB	Redman.
KDAO	KDO	Esparta.	WBCA	KVA	Apache.
KDAQ	KDS	Sixola.	WBCB	KVB	Arapahoe.
KDAU	KDT	Turrialba.	WBCC	WCH	Huron.
KDAW	KLO	Calamares.	WBOD	KIN	Macom.
KDAY	KLF	Metapan.	WBCE	KGR	Cambridge.
KDBD	KLA	Pastores.	WBCF	KUL	Louisiana.
KDBE	KLV	San Mateo.	WBCG	KUW	New York.
KDBI	KLG	Santa Marta.	WBCH	KUM	Texas.
KDBK	KLH	Saramacca.	WBCE	WMM	Freeman.
KDBO	KLI	Suriname.	WBCE	KOU	Isaac T. Mann.
KDCD	KMI	Tivives.	WBCK	WFF	Oskey L. Alexander.
KDCI	KLE	Zacapa.	WBCL	KEJ	Wilson.
KDCK	KFYS	La Perla.	WBCE	KHW	Lake Charles.
KUFO	KUS	Tropical Radio Telegraph Co. (general call).	WBCE	KEE	Atlantic.
WACA	WKF	American.	WBCE	KHZ	Mystic.
WACB	KDYD	Californian.	WBCE	KIA	Ardmore.
WACC	WBA	Columbian.	WBCE	KIB	Muskogee.
WACD	WKD	Dakotan.	WBCE	KIK	Westerner.
WACE	WLR	Floridian.	WBCE	KID	Matinecock.
WACF	KOVP	Georgian.	WBCE	KJT	Waban.
WACG	WKU	Hawaiian.	WBCE	KJV	West Haven.
WACH	WKJ	Iowan.	WBCE	KJX	Westland.
WACI	KQII	Kansan.	WBCE	WIA	Silver Shell.
WACJ	WKE	Kentuckian.	WBCE	WIB	Gold Shell.
WACK	WKL	Mexican.	WBCE	WIC	Pearl Shell.
WACL	WKM	Minnesotan.	WBCE	WEG	American Banker.
WACM	KFAA	Missourian.	WBCE	WEJ	American Farmer.
WACN	WKN	Montanan.	WBCE	WER	Samuel Mitchell.
WACO	WMV	Nebraskan.	WBCE	WER	Puget Sound.
WACP	WLZ	Nevadan.	WBCE	WET	West Gotomska.
WACQ	WKQ	Ohioan.	WBCE	WEV	D. E. Callender.
WACR	WKO	Oregonian.	WBCE	WEZ	Ashtabula.
WACS	WKR	Panaman.	WBCE	WFV	Manitou.
WACT	WKP	Pennsylvanian.	WBCE	WFY	Sialia.
WACU	WKT	Texan.	WBCE	WFZ	Coronado.
WACV	WKV	Virginian.	WBCE	WGA	City of Seattle.
WACW	WMUA	Wheaton.	WBCE	WGB	Ormidale.
WADD	WMY	A. M. Byers.	WBCE	WGC	W. F. White.
WADE	WNH	Clemens A. Reiss.	WBCE	WGD	Oregon.
WADF	WNG	Lynford E. Geer.	WBCE	WGG	Princess Montagu.
WADG	WNX	Peter Reiss.	WBCE	WGW	Guardian.
WADH	WNK	Richard J. Reiss.	WBCE	WHH	S. B. Coolidge.
WADI	WNI	William A. Reiss.	WBCE	WHJ	Sierra.
WADJ	WBS	William G. Mather.	WBCE	WHL	Ventura.
WADK	WBV	Cabrillo.	WBCE	WHM	Sonoma.
WADL	WCA	Tionesta.	WBCE	WHP	Tillamook.
WADM	WCB	Junijata.	WBCE	WHS	W. R. Chamberlain, jr.
WADO	WCD	Octorara.	WBCE	WLN	Santa Cecilia.
WADP	WCF	Favorite.	WBCE	WHU	Big Bill.
			WBCE	WHV	Velero II.

Commercial ship stations, alphabetically, by call signals—Continued

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
WBDZ	WHX	Humboldt.	WDDQ	WPQ	Zapora.
WCCB	KKJ	West Celeron.	WDDR	WPS	Starr.
WCCD	KMB	Amolco.	WDDS	WPT	Colonel.
WCCF	KJZ	Chincha.	WDDT	WPU	Yosemite.
WCCG	KJG	Eurana.	WDDU	WPV	Senator.
WCCJ	KJH	Edwin Christenson.	WDDV	WPW	Central West.
WCCK	KMD	Cristobal.	WDDX	WPX	Sea King.
WCCL	KMS	Ancon.	WDDY	WPY	Cambria.
WCCM	KJP	Joseph R. Parrott.	WDDZ	WPZ	John Anderson.
WCCN	KOX	Henry M. Flagler.	WECA	KRD	Belfast.
WCCO	KND	Plymouth.	WECE	WEL	Boston.
WCCP	WWE	Manchuria.	WECC	KRN	Calvin Austin.
WCCQ	WVN	Mongolia.	WECD	KRC	Camden.
WCCR	WAA	Alameda.	WECE	KRV	Governor Dingley.
WCCS	KMH	Aleutian.	WECE	WJK	New York.
WCCV	WAR	Cordova.	WEGG	KJD	North Land.
WCCW	WNB	Lakina.	WECH	KDJE	Virginia Express.
WCCX	WAI	Latouche.	WECH	WFL	Virginia Limited.
WCCY	WAE	Nizina.	WECI	WFR	George Washington.
WCCZ	WAN	Northwestern.	WECJ	KFAM	Hamilton.
WCDA	WBM	Redondo.	WECK	KOD	Jefferson.
WCDB	WAD	Victoria.	WECL	KRH	City of Bangor.
WCDC	KMX	Yukon.	WECM	KRF	Agwistar.
WCDD	WIS	E. R. Sterling.	WECP	KWD	Antilla.
WCDE	WIU	Restorer.	WECS	KWI	Camaguey.
WCDF	WJJ	Falia.	WECT	KWF	Cauto.
WCDG	WJO	Commercial Guide.	WECU	KWX	Mexico.
WCDD	WJU	Commercial Pathfinder.	WECV	KWY	Monterey.
WCDE	WKO	Philip D. Block.	WECW	KMEI	Orizaba.
WCDF	WKS	West Arrow.	WECX	KWM	Panuco.
WCDD	WKX	Westward Ho.	WECY	WRN	Siboney.
WCDE	WLE	Maitland No. 1.	WECZ	WQD	Beta.
WCDF	WBK	Saucon.	WEDB	WQE	Harvey H. Brown.
WCDD	WLJ	Willabco.	WEDC	WQF	Harry W. Croft.
WCDE	WLM	Stanley Dollar.	WEDD	WQG	Fayette Brown.
WCDF	WLN	Lehigh.	WEDF	WQH	M. A. Bradley.
WCDD	WLQ	Sabine Sun.	WEDG	WQI	Costa Rica.
WCDE	WLT	Lackawanna.	WEDH	WQS	Artemis.
WCDF	WLU	Maryland.	WEDI	WQW	Jeannette Skinner.
WCDD	WLV	Bethlehem.	WEDJ	KKR	Creole.
WCDE	WLX	Steelton.	WEDK	WRF	Amelia.
WCDF	WMA	Multnomah.	WEDL	WRG	Annetta.
WCDD	WMD	Cello.	WEDM	WRI	Florence Olson.
WCDE	WME	Wapama.	WEDN	WRJ	Noyo.
WCDF	WSW	Willamette.	WEDP	WSD	Redwood.
WCDD	WMJ	Ernest H. Meyer.	WEDQ	WSG	Norwood.
WCDE	WMK	Hyades.	WEDR	WSI	Santa Inez.
WCDF	WMS	Wahkeena.	WEDS	WSJ	Edna Christenson.
WCDD	WDA	Pere Marquette 15.	WEDT	WSU	Republic.
WCDE	WDB	Pere Marquette 16.	WEDU	WSZ	Bremerton.
WCDF	WDC	Pere Marquette 17.	WEDV	WTB	American Shipper.
WCDD	WDD	Pere Marquette 18.	WEDW	KWN	Comerio.
WCDE	WDE	Pere Marquette 19.	WEDX	KGP	Ponce.
WCDF	KFTA	Pere Marquette 20.	WEDY	WJG	Porto Rico.
WCDD	KFUD	Pere Marquette 21.	WEDZ	KGJ	San Juan.
WCDE	WDK	Pere Marquette 22.	WEDA	KEZ	San Lorenzo.
WCDF	WDL	Ann Arbor No. 7.	WEDB	KOFQ	City of Albany.
WCDD	WDN	Wabash.	WEDC	KFB	City of Atlanta.
WCDE	WDO	Ann Arbor No. 3.	WEDD	KFKC	City of Birmingham.
WCDF	WDP	Ann Arbor No. 4.	WEDE	KFMA	City of Chattanooga.
WCDD	WDQ	Ann Arbor No. 5.	WEDF	KFA	City of Columbus.
WCDE	KLM	Ann Arbor No. 6.	WEDG	KFY	City of Montgomery.
WCDF	KLU	Bantu.	WEDH	KQZ	Veramar.
WCDD	KLR	Charlton Hall.	WEDI	KFX	City of St. Louis.
WCDE	KLT	Crofton Hall.	WEDJ	KFK	City of Savannah.
WCDF	KRT	Howick Hall.	WEDK	KHR	Albert Hill.
WCDD	KLO	San Francisco.	WEDL	KHS	H. C. Fogler.
WCDE	WMT	Santa Rosalia.	WEDM	KOY	Herbert L. Pratt.
WCDF	WMB	San Pedro.	WEDN	WJM	J. C. Donnell.
WCDD	WMC	T. W. Robinson.	WEDP	KSB	J. E. O'Neil.
WCDE	WNP	Commercial Trader.	WEDQ	WTC	Lansing.
WCDF	WNV	Bowdoin.	WEDR	WTH	Westlake.
WCDD	WOF	Hatteras.	WEDS	WTU	American Trader.
WCDE	WOG	Horace X. Baxter.	WEDT	WWH	Newport.
WCDF	WOJ	Fred Baxter.	WEDU	WWM	San Juan.
WCDD	WPB	Iris.	WEDV	WWR	Rose City.
WCDE	WPC	William C. Atwater.	WEDW	KXT	Black Point.
WCDF	WPI	Tyee.	WEDX	KTN	C. B. Watson.
WCDD	WPK	John McCartney Kennedy.	WEDY	KPF	Commercial Pilot.
WCDE	WPO	John W. Ailes.	WEDZ	KNA	Dorothy Bradford.
WCDF		S. B. Way			

Commercial ship stations, alphabetically, by call signals—Continued

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
WFDM	WON	La Brea.	WJCG	KTG	Gulfoil.
WFDN	WOL	Los Angeles.	WJCH	KVS	Gulf Queen.
WFDO	WTD	Oleum.	WJCI	KTB	Gulfstream.
WFDP	KTR	Radiant.	WJGJ	KTQ	Ligonier.
WFDQ	WEX	Marquette and Bessemer No. 2.	WJCK	KNO	Trinidadian.
WFDS	WLK	Lebanon.	WJCL	KTE	Winifred.
WFDT	WFD	Missouri.	WJCM	KGS	Senator Bailey.
WFDU	WAU	Point Loma.	WJCN	KTH	Robert P. Clark.
WGBB	WKW	Any or all merchant vessels.	WJCO	KZT	Everett.
WGCA	WAY	Admiral Dewey.	WJCR	KXZ	Felix Tausig.
WGCB	KICZ	Admiral Evans.	WJCS	KLY	Lemuel Burrows.
WGCG	WAF	Admiral Farragut.	WJCT	KXY	Lewis K. Thurlow.
WGCD	WGS	Admiral Fiske.	WJCU	KZW	Melrose.
WGCE	WDF	Admiral Moser.	WJCV	KZX	Newton.
WGF	KPL	Admiral Peary.	WJCW	KGX	Sewalls Point.
WGCG	WOA	Admiral Rodman.	WJCX	KXX	Stephen R. Jones.
WGCH	WGE	Admiral Rogers.	WJCY	KDY	Walter D. Noyes.
WGCI	WAZ	Admiral Schley.	WJGZ	WOM	William A. McKenney.
WGCI	WAG	Admiral Sebree.	WKCA	KZG	Carolyn.
WGCK	WAW	Admiral Watson.	WKCB	KNE	Clare.
WGCL	WGK	Curacao.	WKCC	KZD	Cornelia.
WGCM	WGP	Dorothy Alexander.	WKCD	KZF	Edith.
WGCN	KKEE	Emma Alexander.	WKCE	KZP	Evelyn.
WGOO	KDYK	H. F. Alexander.	WKCF	KZH	Helen.
WGPF	WGX	Queen.	WKCG	KZK	Hilton.
WGQW	WJW	South American.	WKCH	KZO	Margaret.
WHCA	WDOA	Agwidale.	WKCI	KNM	Millinocket.
WHCB	KKZ	Brazos.	WKCL	KZQ	Ruth.
WHCC	KUGL	Colorado.	WKCL	KRS	Paulsboro.
WHCD	KEM	Comal.	WKCM	KRW	Sierra.
WHCF	KEF	Henry R. Mallory.	WKCN	KRM	Resolute.
WHCG	KEI	Medina.	WKCO	KRZ	Muncheon.
WHCH	KKQ	Pecos.	WKCP	KSP	Caloria.
WHCI	KES	San Jacinto.	WKCQ	KTI	Richfield.
WHCM	KNL	Nelson.	WKCR	KTO	Malabar.
WHCN	KNT	Fisherman.	WKCU	KTV	Dulcino.
WHOO	KOF	Castle Town.	WKCV	KUP	Pennsylvania.
WHOP	KNS	Cities Service Fuel.	WKCW	WTA	Coamo.
WHCQ	KOL	Mount Hope.	WKCX	KUQ	Maine.
WHOR	KOZ	Miami.	WKCY	KUV	Virginia.
WHOS	KPT	Achilles.	WKCZ	KUZ	Coastwise.
WHOT	KPU	Ulysses.	WLCA	KGK	Edgar F. Luckenbach.
WHOU	KQA	Harry Farnum.	WLCB	KGQ	Edward Luckenbach.
WHCV	KQB	W. L. Connelly.	WLCC	WNZ	F. J. Luckenbach.
WHCWX	KQF	Gene Crawley.	WLCE	KHZ	Julia Luckenbach.
WHCX	KRB	Governor Cobb.	WLCF	KWU	K. I. Luckenbach.
WHCY	KRG	Freeport Sulphur No. 2.	WLCG	KNK	Katrina Luckenbach.
WHCZ	KRJ	Relief.	WLCH	WLY	Lillian Luckenbach.
WICA	KKD	Comus.	WLCL	WNM	Paul Luckenbach.
WICB	WRA	Creole.	WLCM	KVK	Florence Luckenbach.
WICC	KGQ	Dixie.	WLCN	KVY	Tampa.
WICD	KKL	El Alba.	WLCO	KVZ	William Isom.
WICE	KKG	El Almirante.	WLCP	KWJ	Relay.
WICF	KKH	El Capitan.	WLCC	KXG	Commercial Courier.
WICG	KKT	El Cid.	WLCC	KXO	Archer.
WICH	KFSL	El Coston.	WLCS	KYC	Dodeca.
WICI	KKY	El Dia.	WLCT	KYE	Corsair.
WICJ	KDKT	El Estero.	WLCU	KYH	Casiana.
WICK	KDNA	El Isleo.	WLCV	KYO	Aloha.
WICL	KDNW	El Lago.	WLCC	KYP	Vega.
WICM	KKU	El Mundo.	WLCC	KYQ	Onelda.
WICN	KKN	El Norte.	WLCC	KYR	Cytherea.
WICO	WNF	El Oceano.	WMCB	WMN	Dauntless.
WICP	KKX	El Occidente.	WMCC	WML	Enterprise.
WICQ	KKV	El Oriente.	WMCC	WCW	Lurline.
WICR	KKK	El Siglo.	WMCE	KII	Makiki.
WICS	KKW	El Valle.	WMCF	WMQ	Malolo.
WICT	KKM	Momus.	WMCG	WMP	Manoa.
WICU	KDVA	Tamiahua.	WMCH	WMR	Matsonia.
WICV	KKE	Topila.	WMCI	WMO	Maui.
WICW	KKF	Torres.	WMCM	WRS	Wilhelmina.
WJCA	KNU	Currier.	WMCP	WBD	California.
WJCB	KUC	Gulf of Mexico.	WMCQ	WBE	Santa Cruz.
WJCC	KUE	Gulfcoast.	WMCQ	KQE	Cacique.
WJCD	KUD	Gulfland.	WMCT	KQG	Essex.
WJCE	KUA	Gulflight.	WMCU	KQR	Gloucester.
WJCF	KUB	Gulfmaid.	WMCV	KQH	Greecian.
					Howard.

Commercial ship stations, alphabetically, by call signals—Continued

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
WMCW	KQJ	Juniata.	WPCX	WDV	City of Benton Harbor.
WMCY	KQN	Nantucket.	WPCY	WCZ	Illinois.
WMCZ	KQO	Ontario.	WPCZ	WFO	Indiana.
WNCA	WJN	Munaires.	WQCA	KDB	Caracas.
WNCB	KUX	Munabro.	WQCB	KIM	Maracaibo.
WNCC	KUI	Munamar.	WQCC	KDQ	Santore.
WNCD	KUF	Mundelta.	WQCD	KDV	Libby Maine.
WNCE	KVE	Munindies.	WQCE	KDW	Star of Zealand.
WNCF	KJO	Munisia.	WQCF	KDX	Firmore.
WNCG	KMZ	Munorleans.	WQCG	KHP	Mangore.
WNCH	KUG	Munplace.	WQCH	WCN	Carabobo.
WNCI	KVD	Munrio.	WQCI	WDG	Otsego.
WNCJ	KUK	Munsono.	WQCK	WHG	W. F. Burrows.
WNCM	KVJ	Walter D. Munson.	WQCL	KHU	Trujillo.
WNCN	WEA	City of Cleveland III.	WQCM	KYS	Arctic.
WNCO	WEF	City of Detroit III.	WQCN	KEN	Mount Baker.
WNCQ	WBB	Santa Cecilia.	WQCO	WLH	Saucon.
WNCR	KYT	Delecto.	WQCP	WNS	Kvichak.
WNCX	KZL	Halcyon.	WQCC	WTO	Frank H. Buck.
WNCY	KZR	Mahoe.	WQCS	KRR	C. A. Snider.
WNCZ	WBG	Venezuela.	WQCT	KFF	Frieda.
WNC1	WBH	Colombia.	WQCU	KFG	Feltore.
WNC2	KZZ	Rosamond.	WQCV	WFH	Avalon.
WNC3	WAB	Saugerties.	WQCW	KOT	Kanak.
WNC4	WBN	Euador.	WQCX	KFK	Owego.
WNC5	WAK	Seminole.	WQCY	WFM	Minnesota.
WNC6	WAL	Santa Ana.	WQCZ	KIP	General W. C. Gorgas.
WNC7	WAO	Rajah.	WRCB	KXB	City of Lowell.
WNC8	WRD	D. G. Scofield.	WRCC	KXC	Commonwealth.
WNC9	WTV	Captain A. F. Lucas.	WRCE	KXE	Mohawk.
WNC0	WTQ	El Segundo.	WRCF	KXF	New Hampshire.
WNC1	WTX	Hawaiian Standard.	WRCH	KXH	Plymouth.
WNC2	WFA	J. C. Fitzsimmons.	WRCI	KXI	Priscilla.
WNC3	WTR	Richmond.	WR CJ	KXJ	Providence.
WNC4	WTY	S. O. Co. No. 93.	WR CM	KXM	Mohegan.
WNC5	WTZ	S. O. Co. No. 95.	WR CN	KXN	New Haven.
WNC6	WRE	J. A. Moffett.	WRCP	KXP	Pequonock.
WNC7	KNZ	A. C. Bedford.	WR CQ	KXQ	Chester W. Chapin.
WNC8	KPS	Benjamin Brewster.	WR CR	KXR	Richard Peck.
WNC9	KSK	Caddo.	WR CY	KNC	Concord.
WNC0	KSQ	Charles Pratt.	WR CZ	KNB	Lexington.
WNC1	KNQ	F. Q. Barstow.	WSBH	WJA	Greater Buffalo.
WNC2	KNY	Fred W. Weller.	WSBI	WJT	Greater Detroit.
WNC3	KOH	Glenpool.	WSBN	WSN	Leviathan.
WNC4	KSI	H. H. Rogers.	WSCB	KTY	W. C. Teagle.
WNC5	KER	H. M. Flagler.	WSCC	KPD	W. H. Tilford.
WNC6	KIN	J. A. Bostwick.	WSCD	KNF	Wm. G. Warden.
WNC7	KTP	James McGee.	WSCF	KIJ	Acme.
WNC8	WZAA	L. J. Drake.	WSCG	KIQ	Astral.
WNC9	KJW	O. T. Waring.	WSCJ	KWP	Atlas.
WNC0	KIG	Pioneer.	WSCS	KSY	Broad Arrow.
WNC1	KOI	Polarine.	WSCL	KIR	Eagle.
WNC2	KST	Princeton.	WSCO	KTM	Eocene.
WNC3	KIC	Standard.	WSCP	KRO	Los Alamos.
WNC4	WIH	C. A. Canfield.	WSCQ	KTL	Rayo.
WNC5	WID	Charles E. Harwood.	WSCR	WRH	Harvard.
WNC6	WIE	Edward L. Doheny.	WSCS	WES	City of Honolulu.
WNC7	WNQ	Frederic Ewing.	WSC T	WRY	Yale.
WNC8	WIQ	Frederic R. Kellogg.	WSCU	KSW	Royal Arrow.
WNC9	WIT	George G. Henry.	WSCV	KTX	Socony.
WNC0	WIX	Harold Walker.	WSCW	KSV	Standard Arrow.
WNC1	WIF	Herbert G. Wylie.	WSCX	KSX	Sylvan Arrow.
WNC2	WIW	J. M. Dantiger.	WSCY	KIT	Tiger.
WNC3	WIG	Norman Bridget.	WSCZ	KTS	Vesta.
WNC4	WIV	Oscar D. Bennett.	WTBA	WEN	North American.
WNC5	WIJ	R. W. Stewart.	WTCA	WED	Western States.
WNC6	WKG	S. M. Spalding.	WT CB	WEE	Eastern States.
WNC7	WIY	William Green.	WTCH	WDT	Robert E. Lee.
WNC8	WAT	Skagway.	WT CI	WEO	Cherokee.
WNC9	WAP	Peary.	WT CR	WFQ	City of Buffalo.
WNC0	WAS	Chester Sun.	WTCS	WFP	City of Erie.
WNC1	WFB	Alabama.	WTCT	WFS	Seandbee.
WNC2	WFG	Arizona.	WT CU	WCP	Goodtime.
WNC3	WFE	Carolina.	WT CW	KSN	Republic.
WNC4	WFJ	Christopher Columbus.			

Government land stations, alphabetically, by names

Station	Call signal	
	From—	To—
Fort Lauderdale, Fla. (section base 6)	NEFX	NBI
Newport, R. I. (torpedo station)	NIFT	NBK
Newport, R. I. (torpedo station)	NIFV	NHB
Staten Island, N. Y. (section base 2)	NABD	NBH

Government ship stations, alphabetically, by names

Name of vessel	From—	To—	Name of vessel	Call signal	
				From—	To—
Acushnet	NRU	NEZQ	Frederick	NJS	NEGV
Albany	NBJ	NABT	Fulton	NZD	NEDD
Algonquin	NRA	NEXD	Galveston	NGD	NANF
Allen	NJD	NEGN	Genesee	NRG	NEKD
Ammen	NBP	NABV	Goldsbrough	NGJ	NAPT
Annapolis	NBR	NABX	Gresham	NRG	NEZC
Any or all U. S. warships	NOB	NERK	Guam	NHP	NECS
Arapaho	NSP	NIDS	H-2	NYD	NIFF
Arizona	NBW	NACV	H-3	NYE	NERF
Arkansas	NBV	NACT	Hannibal	NGU	NAQV
Aroostook	NMK	NENR	Helena	NGY	NASC
Aylwin	NIH	NEDN	Henderson	NOH	NESD
Baohc	NLK	NEND	Henry	NHA	NASD
Bagley	NVU	NIQS	Huntington	NWG	NIRK
Balley	NCF	NADZ	Huron	NSX	NIDV
Balch	NIH	NEDP	Idaho	NHN	NAVX
Baltimore	NCH	NAFD	Isabel	NHF	NASG
Barney	NVV	NIQT	Jarvis	NIB	NEDK
Bath	NHY	NEDF	Jason	NNB	NEQB
Beale	NCL	NAFK	Jenkins	NID	NEDL
Bear	NRB	NEXK	Jouett	NTE	NEDM
Benham	NIJ	NEDQ	K-1	NYF	NEPF
Biddle	NVW	NIQX	K-2	NYG	NELD
Birmingham	NCN	NAFM	K-3	NYH	NELF
Blakeley	NVX	NIQZ	K-4	NYI	NELM
Bridge	NOI	NESF	K-5	NYJ	NELP
Bridgeport	NGR	NAPV	K-6	NYK	NELQ
Burrows	NCV	NAPF	K-7	NYL	NELS
Bushnell	NZO	NEFS	K-8	NYM	NELT
Caldwell	NSI	NIDQ	Kanawha	NND	NEQD
California	NDF	NAFT	Kilkenny	KKI	WBOX
Cassin	NIK	NEDR	Kittery	NHW	NECX
Charleston	NFE	NAKV	L-2	NYO	NELZ
Charlotte	NMN	NEPK	L-3	NYP	NEKK
Chattanooga	NGI	NANV	L-9	NYV	NEGS
Chester	NDG	NAFV	L-11	NYX	NEFF
Cheyenne	NDH	NAGD	Langley	NNC	NEQC
Chicago	NDI	NAGM	Little	NBT	NEZM
Cleveland	NDM	NAGV	Luzon	NHT	NEGJ
Commanche	NRW	NIDC	Lydonia	NDR	NAPT
Commodore	NLE	NENB	Manley	NSH	NIDP
Conner	NSN	NIDR	Manning	NRN	NEZG
Conyngham	NJE	NEGP	Maunee	NNE	NEQL
Craneship No. 1	NIP	NEDZ	Mayflower	NJV	NEGZ
Cummings	NIL	NEDT	Mayrant	NJU	NEGX
Cushing	NIM	NEDV	McCall	NJW	NEJV
Cuyama	NOD	NERP	McDougal	NIT	NEFP
Dahlgren	NVZ	NIRD	Melville	NKA	NEJX
Davis	NJF	NEGR	Mercy	NKK	NEKM
Denver	NEM	NAJV	Mindanao	NHU	NEPC
Des Moines	NEN	NAKD	Mississippi	NKO	NEKT
Downes	NIN	NEDX	Missoula	NKM	NEKR
Drayton	NET	NAKN	Monaghan	NKL	NEKP
Dreadnaught	NCX	NAFQ	Monocacy	NQQ	NETN
Dubuque	NEU	NAKP	Morrill	NRC	NEXL
Duncan	NIR	NEFB	Morris	NWS	NITS
Dupont	NWO	NIRF	N-1	NZE	NEDS
Elcano	NFD	NAKS	N-2	NZF	NAJJ
Ericsson	NIS	NEFD	N-3	NZG	NAKK
Essex	NMY	NEPN	Nantucket	NFU	NAMS
Fairfax	NTN	NJC	Navajo	NKZ	NEMR
Fanning	NFM	NALS	Neptune	NMS	NEPM
Farragut	NVS	NIQR	Nereus	NNF	NEQP
Florida	NFR	NAMB	Nevada	NCA	NADK
Foote	NWF	NIRJ	New Mexico	NQW	NEVN
Fox	NWJ	NIRQ	New Orleans	NMG	NENP

Government ship stations, alphabetically, by names—Continued

Name of vessel	From—	To—	Name of vessel	From—	To—
Newport.....	NMH	NENQ	Scorpion.....	NTT	NIKJ
New York.....	NOC	NADT	Seminole.....	NRS	NEZL
Nicholson.....	NIU	NEFR	Seneca.....	NRE	NEXP
North Dakota.....	NMO	NEPL	Shaw.....	NKU	NEMB
Oahu.....	NHS	NEFN	Shubrick.....	NWU	NIXD
O'Brien.....	NIV	NEFV	Snohomish.....	NRF	NEXQ
Oglala.....	NML	NEPJ	Solace.....	NBT	NIDT
Oklahoma.....	NOB	NADN	Somers.....	NWV	NIZX
Olympia.....	NGG	NANT	Sonoma.....	NTG	NIGT
Ontario.....	NTA	NIDX	Sterrett.....	NTV	NIDZ
Orion.....	NOO	NERN	St. Louis.....	NTF	NIFG
Ossipee.....	NRJ	NEZD	Stockton.....	NEO	NAKL
Paducah.....	NOG	NESC	Surveyor.....	NQU	NEVG
Palos.....	NQS	NETR	Sylph.....	NTL	NIGX
Pamlico.....	NER	NEZK	Tallahpoosa.....	NRV	NIDB
Pampanga.....	NQT	NEVF	Tennessee.....	NBE	NIDN
Panay.....	NHR	NEDB	Terry.....	NUI	NIKZ
Parker.....	NIX	NEFZ	Texas.....	NOD	NADV
Patapsco.....	NOL	NESL	Thornton.....	NWK	NIZZ
Pathfinder.....	NLJ	NENC	Tingey.....	NWY	NISG
Patterson.....	NOK	NESG	Topeka.....	NLY	NENF
Paulding.....	NON	NESP	Trippe.....	NJQ	NIQC
Pawtucket.....	NUJ	NIQB	Triton.....	NVC	NIQD
Pennsylvania.....	NCE	NADX	Tucker.....	NKV	NEMF
Penobscot.....	NOE	NESB	Tuscarora.....	NRL	NEZF
Perkins.....	NOX	NETM	Tutuila.....	NHQ	NEKO
Pittsburgh.....	NOT	NETC	Unaiga.....	NRX	NIDL
Porter.....	NOO	NESQ	Undaunted.....	NNX	NERD
Prometheus.....	NQR	NETP	Utah.....	NVE	NIQJ
Proteus.....	NNG	NERO	Vestal.....	NMC	NENK
Pueblo.....	NDN	NAJS	Villalobos.....	NVP	NIQP
Rainbow.....	NFZ	NAMV	Wadsworth.....	NKW	NEMK
Rappahannock.....	NJO	NEGT	Wainwright.....	NKX	NEMN
Rochester.....	NTR	NIKD	Walke.....	NWL	NITQ
Rodgers.....	NWT	NITZ	Warrington.....	NWD	NIRG
Roe.....	NTZ	NIKN	Wheeling.....	NWH	NIRP
Rowan.....	NKR	NEKX	Wilkes.....	NKQ	NEKV
Sacramento.....	NQV	NEVJ	Wilmington.....	NWK	NIRS
Salem.....	NTP	NLJD	Winslow.....	NJA	NEGM
Sampson.....	NKS	NELC	Wompatuck.....	NVJ	NIQN
San Francisco.....	NTQ	NIJZ	Wyoming.....	NWQ	NITR
Savannah.....	NGS	NAQL	Yamacraw.....	NRV	NIDM
Schley.....	NKT	NELJ	Yantic.....	NHK	NEDC

Government land stations, alphabetically, by call signals

Call signal		Station
To—	From—	
NBH	NABD	Staten Island, N. Y. (section base 2).
NBI	NEFX	Fort Lauderdale, Fla. (section base 6).
NBK	NIFT	Newport, R. I. (torpedo station).
NBB	NIFV	Do.

Government ship stations, alphabetically, by call signals

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
NABT	NBJ	Albany.	NEJX	NKA	Melville.
NABV	NBP	Amnen.	NEKD	NKG	Genesee.
NABX	NBR	Annapolis.	NEKM	NKK	Mercy.
NACT	NBV	Arkansas.	NEKP	NKL	Mannaghan.
NACV	NBW	Arizona.	NEKR	NKM	Missoula.
NADK	NCA	Nevada.	NEKT	NKO	Mississippi.
NADN	NCB	Oklahoma.	NEKV	NKQ	Wilkes.
NADT	NCC	New York.	NEKX	NKT	Rowan.
NADV	NCD	Texas.	NELC	NKS	Sampson.
NADX	NCE	Pennsylvania.	NELJ	NKT	Schley.
NADZ	NCF	Bailey.	NEMB	NKU	Shaw.
NAFD	NOH	Baltimore.	NEMF	NKV	Tucker.
NAFK	NCL	Beale.	NEMK	NKW	Wadsworth.
NAFM	NOM	Birmingham.	NEMN	NKX	Wainwright.
NAFP	NCV	Burrows.	NEMB	NKZ	Narsjo.
NAFQ	NCX	Dreadnaught.	NENB	NLE	Commodore.
NAFT	NDF	California.	NENC	NLJ	Pathfinder.
NAFV	NDG	Chester.	NEND	NLK	Bache.
NAGD	NDH	Cheyenne.	NENF	NLY	Topeka.
NAGM	NDI	Chicago.	NENK	NMC	Vestal.
NAGV	NDM	Cleveland.	NENP	NMG	New Orleans.
NAJ3	NDN	Pueblo.	NENQ	NMH	Newport.
NAJT	NDR	Lydonia.	NENR	NMK	Arcootook.
NAJV	NEM	Deaver.	NEPJ	NML	Ogala.
NAKD	NEN	Des Moines.	NEPK	NMN	Charlotte.
NAKL	NEO	Stockton.	NEPL	NMO	North Dakota.
NAKN	NET	Drayton.	NEPM	NMS	Neptune.
NAKP	NEU	Dubuque.	NEPN	NMY	Essex.
NAKS	NFD	Elcano.	NEQB	NNB	Jason.
NAKV	NFE	Charleston.	NEQC	NNC	Langley.
NALS	NFM	Fanning.	NEQD	NND	Kanawha.
NAMB	NFR	Florida.	NEQL	NNE	Maumee.
NAMS	NFU	Nantucket.	NEQP	NNF	Nereus.
NAMV	NFZ	Rainbow.	NERC	NNG	Proteus.
NANF	NGD	Galveston.	NERD	NNX	Undaunted.
NANT	NGG	Olympia.	NERK	NOB	Any or all U. S. warships.
NANV	NGI	Chahtaooaga.	NERN	NOC	Orion.
NAPT	NGJ	Goldsborough.	NERP	NOD	Cuyama.
NAPV	NGR	Bridgeport.	NESB	NOE	Penobscot.
NAQL	NGS	Savannah.	NESC	NOG	Paducah.
NAQV	NGU	Hannibal.	NESD	NOH	Henderson.
NASO	NGY	Helena.	NESF	NOI	Bridge.
NASD	NHA	Henley.	NESG	NOK	Patterson.
NASG	NHF	Isabel.	NESL	NOL	Patapsco.
NAVX	NHN	Idaho.	NESP	NON	Paulding.
NECS	NHP	Guam.	NESQ	NOO	Porter.
NEKC	NHQ	Tutulla.	NETC	NOT	Pittsburgh.
NEDB	NHE	Panay.	NETM	NOX	Perkins.
NEFN	NHS	Oahu.	NETN	NQQ	Monocacy.
NEGI	NHT	Luzen.	NETP	NQR	Prometheus.
NEPC	NHU	Mindanso.	NETR	NQS	Palos.
NECX	NHW	Kittery.	NEVT	NQT	Pampanga.
NEDC	NHX	Yantia.	NEVG	NQU	Surveyor.
NEDF	NHY	Bath.	NEVJ	NQV	Sacramento.
NEDK	NIB	Jarvis.	NEVN	NQW	New Mexico.
NEDL	NID	Jenkins.	NEXD	NRA	Algonquin.
NEDM	NIE	Jouett.	NEXX	NRB	Bear.
NEDN	NIH	Aylwin.	NEXL	KRC	Morrill.
NEDP	NII	Balch.	NEXP	NRE	Seneca.
NEDQ	NIJ	Benham.	NEXQ	NRF	Snohomish.
NEDR	NIK	Cassia.	NEZC	NRG	Gresham.
NEDT	NIL	Cummings.	NEZD	NRJ	Ossipee.
NEDV	NIM	Cushing.	NEZF	NRE	Fuscarora.
NEDX	NIN	Downes.	NEZG	NRN	Manning.
NEDZ	NIP	Craneship No. 1.	NEZK	NRR	Pamlico.
NEFB	NIR	Duncan.	NEZL	NRS	Seminole.
NEFD	NIS	Ericsson.	NEZM	NRT	Little.
NEFP	NIT	McDougal.	NEZQ	NRU	Acushnet.
NEFR	NIU	Nicholson.	NIDB	NRV	Tallapoosa.
NEFV	NIV	O'Brien.	NIDC	NRW	Commanche.
NEFZ	NIX	Parker.	NIDL	NRX	Unalga.
NEGM	NJA	Winslow.	NIDM	NRV	Yamacraw.
NEGN	NJD	Allen.	NIDN	NRE	Tennessee.
NEGP	NJE	Conyngham.	NIDP	NRH	Manley.
NEGR	NJF	Davis.	NIDQ	NRJ	Caldwell.
NEGT	NJO	Rappahannock.	NIDR	NRN	Conner.
NEGV	NJS	Frederick.	NIDS	NSP	Arapaho.
NEGX	NJU	Mayrant.	NIDT	NSB	Solace.
NEGZ	NJV	Mayflower.	NIDV	NSX	Huron.
NEJV	NJW	McCall.	NIDX	NTA	Ontario.

Government ship stations, alphabetically, by call signals—Continued

Call signal		Name of vessel	Call signal		Name of vessel
To—	From—		To—	From—	
NIDZ	NTB	Sterrett.	NIRS	NWK	Wilmington.
NIFG	NTF	St. Louis.	NITQ	NWL	Walke.
NIGT	NTG	Sonoma.	NITR	NWQ	Wyoming.
NIGX	NTL	Sylph.	NITS	NWS	Morris.
NIJC	NTN	Fairfax.	NITZ	NWT	Rodgers.
NIJD	NTP	Salem.	NIXD	NWU	Shubrick.
NIJZ	NTQ	San Francisco.	NIZX	NWV	Somers.
NIKD	NTR	Rochester.	NIZZ	NWX	Thornton.
NIKJ	NTT	Scorpion.	NISG	NWY	Tingey.
NIKN	NTZ	Roe.	NIFF	NYD	H-2.
NIKZ	NUI	Terry.	NERF	NYE	H-3.
NIQB	NUJ	Pawtucket.	NEPP	NYF	K-1.
NIQC	NUQ	Trippe.	NELD	NYG	K-2.
NIQD	NVC	Triton.	NELF	NYH	K-3.
NIQJ	NVE	Utah.	NELM	NYI	K-4.
NIQN	NVJ	Wompatuck.	NELP	NYJ	K-5.
NIQP	NVP	Villalobos.	NELQ	NYK	K-6.
NIQR	NVS	Farragut.	NELS	NYL	K-7.
NIQS	NVU	Bagley.	NELT	NYM	K-8.
NIQT	NVV	Barney.	NELZ	NYO	L-2.
NIQX	NVW	Biddle.	NEKK	NYP	L-3.
NIQZ	NVX	Blakeley.	NEGS	NYV	L-9.
NIRD	NVZ	Dahlgren.	NEFF	NYX	L-11.
NIRF	NWC	Dupont.	NEFS	NZC	Bushnell.
NIRG	NWD	Warrington.	NEDD	NZD	Fulton.
NIRJ	NWF	Foote.	NEDS	NZE	N-1.
NIRK	NWG	Huntington.	NAJJ	NZF	N-2.
NIRP	NWH	Wheeling.	NAKK	NZG	N-3.
NIRQ	NWJ	Fox.	WROX	KKI	Kilkenny.

AMATEUR AND SPECIAL (EXPERIMENTAL AND TECHNICAL TRAINING SCHOOL) STATION
CALLS TO BE CHANGED

Under section 2, paragraph d, of article 14 of the International Radiotelegraph Convention, Washington, 1927; call signals of private experimental stations (which under article 1 are "(1) a private station intended for experiments with a view to the development of radio technique or art; (2) stations used by an "amateur"—that is to say, a duly authorized person who is interested in the radio technique solely with a personal object and without pecuniary interest) shall consist of the letter or letters indicating the nationality and a single figure followed by a group of not more than three letters.

While the requirements of the convention are not actually effective until January 1, 1929, it has been deemed advisable to change the call signals effective October 1, next, as the division desires to show the new signals in the annual list of Amateur Radio Stations of the United States, edition June 30, 1928, rather than to change the calls effective January 1, 1929, and publish the new calls in the June 30, 1929, edition.

Therefore, beginning that date, all stations in the classes above named within the continental limits of the United States are hereby ordered to add to their call signals the letter "W," and those in Alaska, Hawaii, Porto Rico, and the Virgin Islands, should add the letter "K." These letters should precede the call signal; for example, station 4ABC, if within the continental limits of this country, becomes W4ABC and, if in Porto Rico, becomes K4ABC.

INTERNATIONAL PREFIXES FOR CALL SIGNALS OF AMATEUR STATIONS
TENTATIVELY ASSIGNED

CI. Chile.	K. United States.	TI. Costa Rica.
CF. Canada.	LA. Norway.	TS. Sarre.
CL. Cuba.	LO. Argentine.	UH. Hedjaz.
CN. Morocco.	LZ. Bulgaria.	UI. Dutch East Indies.
CP. Bolivia.	M. England.	UL. Luxemburg.
CR. Portuguese colonies.	N. United States.	UN. Yugoslavia.
CS. Portugal.	OA. Peru.	UO. Austria.
CV. Rumania.	OH. Finland.	VE. Canada.
CW. Uruguay.	OK. Czechoslovakia.	VH. Australia.
CZ. Monaco.	ON. Belgium and colonies.	VO. Newfoundland.
D. Germany.	OU. Denmark.	VP. English colonies.
EA. Spain.	PA. Holland.	VT. India.
EI. Ireland.	PJ. Curacao.	W. United States.
EL. Liberia, E.	PK. Dutch East Indies.	XA. Mexico.
ES. Estonia.	PP. Brazil.	XG. China.
ET. Ethiopia.	PZ. Surinam.	YA. Afghanistan.
F. France and colonies.	RA. Russia.	YH. New Hebrides.
G. England.	RV. Persia.	YI. Iraq.
HA. Hungary.	RX. Panama.	YL. Lettonia.
HB. Switzerland.	RY. Lithuania.	YM. Danzig.
HC. Ecuador.	SM. Sweden.	YN. Nicaragua.
HH. Haiti.	SP. Poland.	YS. San Salvador.
HI. Dominican Republic.	SU. Egypt.	YV. Venezuela.
HJ. Colombia.	SV. Greece.	ZA. Albania.
HP. Honduras.	TA. Turkey.	ZK. New Zealand.
HS. Siam.	TF. Iceland.	ZP. Paraguay.
I. Italy.	TG. Guatemala.	ZS. South Africa.
J. Japan.		

LIST OF FREQUENCIES BELOW 4,000 KILOCYCLES ALLOCATED TO GOVERNMENT STATIONS

Under Executive order of March 30, 1928, the frequencies shown hereunder were allocated for the use of Government stations. The Radio Service Bulletin for last month contains a list of the frequencies above 4,000 kilocycles.

Frequency-kilocycles

17.6	93.7	185.0	215.0
19.8	100.0	187.0	216.0
26.1	102.0	190.0	217.0
28.5	104.0	192.0	218.0
30.6	105.0	195.0	219.0
32.8	106.0	196.0	220.0
33.8	108.0	197.0	221.0
38.0	113.0	198.0	222.0
42.8	115.0	199.0	223.0
46.0	120.0	200.0	224.0
48.0	122.0	200.0	225.0
51.0	125.0	201.0	226.0
54.0	128.0	202.0	227.0
54.0	132.0	203.0	228.0
56.0	133.0	204.0	229.0
58.0	153.0	205.0	230.0
64.0	155.0	205.0	231.0
66.0	159.0	206.0	232.0
66.0	166.6	207.0	233.0
68.0	172.0	208.0	234.0
72.0	173.0	209.0	235.0
75.0	175.0	210.0	236.0
78.0	175.0	211.0	237.0
81.0	180.0	212.0	238.0
83.0	185.0	213.0	239.0
86.0	185.0	214.0	240.0

Frequency-kilocycles—Continued

241.0	445.0	738.0	2,995.0
242.0	445.0	750.0	3,005.0
243.0	447.0	1,110.0	3,035.0
244.0	450.0	2,010.0-2,020.0	3,065.0
245.0	454.0	2,240.0-2,250.0	3,095.0
245.0	465.0	2,305.0	3,155.0
250.0	471.0	2,315.0	3,195.0
258.0	476.0	2,335.0	3,235.0
260.0	480.0	2,355.0	3,265.0
266.0	500.0	2,385.0	3,295.0
272.0	525.0	2,405.0	3,340.0
273.0	536.0	2,435.0	3,345.0
275.0	540.0	2,465.0	3,345.0
275.0	545.0	2,485.0	3,350.0
275.0	545.0	2,515.0	3,355.0
275.0	550.0	2,545.0	3,360.0
280.0	550.0-1,500.0	2,575.0	3,365.0
284.0	558.0	2,605.0	3,370.0
285.0-315.0	566.0	2,655.0	3,375.0
315.0-350.0	600.0	2,675.0	3,380.0
343.0	618.0	2,685.0	3,385.0
355.0	625.0	2,705.0	3,385.0
355.0	631.0	2,715.0	3,390.0
375.0	638.0	2,745.0	3,395.0
396.0	645.0	2,885.0	3,400.0
405.0	652.0	2,915.0	3,405.0
410.0	659.0	2,955.0	3,410.0
425.0	666.0	2,960.0	3,415.0
425.0	681.0	2,965.0	3,445.0
428.0	685.0	2,970.0	3,475.0
435.0	689.0	2,975.0	3,500.0-4,000.0
440.0	690.0	2,980.0	

LOST COMMERCIAL RADIO OPERATORS' LICENSES

Hereunder is a list of radio operators' licenses which have been reported to this bureau as having been lost. Should any of them be found, they should be returned to the bureau for cancellation. Inspectors and others concerned should see that lost licenses are not being used by unauthorized persons.

Name	Class	No.	Date Issued	Port Issued
Blair, Douglas Eugene	First	7630	June 14, 1926	Baltimore.
Cappell, Stanley Belton	do	17645	Feb. 18, 1927	San Francisco.
Cooper, Willard George	do	14082	Jan. 13, 1927	Do.
Dorsett, Paul V	do	2417	Mar. 2, 1928	New Orleans.
Drury, Eugene E	do	13908	Aug. 23, 1926	San Francisco.
Ewing, Robert E	do	13811	June 11, 1926	Do.
Graves, Lindsay Howlette	do	2358	Dec. 21, 1927	New Orleans.
Grimm, Philip John	do	1865	Dec. 1, 1927	Atlanta.
Herider, Ernest D	Second	4524	Jan. 28, 1927	Chicago.
Justice, Francis Charles	First	15296	July 30, 1926	Boston.
Mason, Howard F	do	15806	Feb. 9, 1927	Seattle.
Milkewitz, Joseph Bernard	do	1137	Aug. 5, 1927	New York.
Pray, Erwin M	Second	4413	May 26, 1926	Chicago.
Schneider, H. M	First	166	June 13, 1926	Washington.
Sexton, Raymond J	do	14491	Oct. 23, 1926	New Orleans.
Shafter, Lloyd Arthur	do	16103	June 1, 1926	New York.
Stark, R. L	Second	1261	Jan. 31, 1928	Seattle.

SHORT-WAVE TRANSMISSIONS OF TIME SIGNALS BY RIO DE JANEIRO, BRAZIL

Station POT, located at the National Observatory, Rio de Janeiro, in approximately longitude 43° 10' 00" W., latitude 22° 54' 00" S., now transmits time signals on short waves as shown hereunder.

Three series of time signals on 34.4 meters, transmitted as follows:

FIRST SERIES

G. M. T.					
h.	m.	s.	h.	m.	s.
0	01	00			

0	06	00 to 0	10	00	
---	----	---------	----	----	--

Signal

QST DE POT (3 times); VVVVV, etc. *Signalos horarios POT (time signals from Rio de Janeiro Observatory).*

International W/T Time Signals (Onogo system).
See List of Wireless Signals, pages 574 and 575.

SECOND SERIES

h.	m.	s.	h.	m.	s.
0	10	00 to 0	15	00	

0	15	00 to 0	20	00	
---	----	---------	----	----	--

VVVVV, etc. *Signalos horarios POT (time signals from Rio de Janeiro Observatory).*

Special time signals consisting of 6 dots (••••••) sent every 10 seconds for 5 minutes, thus:—

second: 5 6 7 8 9 10

• • • • • •

second: 15 16 17 18 19 20

• • • • • •

second: 25 26 27 28 29 30 etc.

• • • • • •

The last dot of the final group is sent at 0^h 20^m 00^s G. M. T., corresponding to 21^h 20^m 00^s Standard Time.

The interval between each dot is one second.

THIRD SERIES

h.	m.	s.	h.	m.	s.
0	20	00 to 0	26	00	

0	26	00 to 0	30	00	
---	----	---------	----	----	--

VVVVV, etc. *Signalos horarios POT (time signals from Rio de Janeiro Observatory).*

New International W/T Time Signals (see List of Wireless Signals, pages 608 and 609).

These signals can be received at greater distances than the time signals transmitted on 600 meters by station SPY, Rio de Janeiro (Arpoador).

RADIOBEACON ESTABLISHED AT HOLYHEAD BAY, ENGLAND

A radiobeacon has been established at the Holyhead Bay Lighthouse in approximately longitude 4° 36' W., latitude 53° 25' N.; call signal GGK, wave length, 1,000 meters.

During foggy weather the signal will be transmitted for one minute, every four minutes, thus: (a) The call signal GGK (— . . — . . — . .) at the rate of 15 words per minute, repeated for 48 seconds, approximately; (b) a long dash (—) of 10 seconds duration, approximately; (c) the call signal GGK made once, of two seconds duration, approximately (the whole transmission of a, b, and c will take 60 seconds); a silent interval of three minutes.

During clear weather, three emissions of the whole of the signal described above will be made consecutively at half-hourly intervals, approximately, commencing at seven minutes past the hour.

RADIO FADING IN THE BROADCAST RANGE

For the past several months an investigation has been conducted by the Bureau of Standards to determine the factors contributing to the phenomenon known as fading. Special apparatus utilized in conjunction with radio receiving sets make it possible to secure graphic records of the increase and decrease of signal strength such as is commonly experienced when listening to programs from distant stations at night. This apparatus, sufficiently sensitive to indicate variations smaller than the ear can detect, was used with receiving systems employing different types of antennas to analyze the manner in which the waves transmitted from a broadcasting antenna arrive at the receiving antenna.

The factors which may cause variations in the intensity of radio waves are complex, and a critical study of fading has suggested explanations of some of these factors.

Graphic records of a single selected transmission were made, using identical receiving sets except for the antennas. The antenna systems used in the course of the investigation were (1) vertical antenna, (2) coil antenna directed toward the station being received, (3) coil antenna with plane at right angles to the direction of the transmission path, (4) combination of coil antenna and vertical antenna connected in such a way as to eliminate waves received directly from the station. Simultaneous records were made, using two receiving sets with different types of antennas.

Examination of data from simultaneous measurements made with a coil antenna in maximum position and with a vertical antenna, respectively, indicated that for stations 165 to 1,500 kilometers distant the same sort of fading occurred simultaneously in both antennas, but that for stations 13 to 53 kilometers distant similar fading characteristics did not occur simultaneously.

Records made with coil antennas at maximum and minimum positions showed that for a station 300 kilometers distant, for instance, there are considerable periods in which an increase of intensity in one antenna is accompanied by a decrease in the other. Often a relatively rapid and periodic fluctuation of small magnitude is found superposed on the longer-period trend of the records. It was found that, for one station at least, this superposed, rapid fading of periodic type occurs with considerable regularity directly after sunset and lasts for approximately a half hour.

The results may be interpreted to mean that the waves do not reach the receiving antenna in the same position relative to antenna in which they start; that is, their plane of polarization is changed. This change only takes place when the wave has been reflected. Several reflections from different points may take place, resulting in there being at the receiving station two or more waves which started at the same time from the transmitting station and traveled very different paths before reaching the receiving station.

More detail concerning these phenomena will be given in a paper to be published at a later date. Notice of this publication will be given in the Radio Service Bulletin.

REFERENCES TO CURRENT RADIO LITERATURE

This is a monthly list of references prepared by the Bureau of Standards and is intended to cover the more important papers of interest to professional radio engineers which have recently appeared in periodicals, books, etc. The number at the left of each reference classifies the reference by subject, in accordance with the scheme presented in A Decimal Classification of Radio Subjects—An Extension of the Dewey System, Bureau of Standards Circular No. 138, a copy of which may be obtained for 10 cents from the Superintendent of Documents, Government Printing Office, Washington, D. C. The various articles listed below are not obtainable from the Government. The various periodicals can be secured from their publishers and can be consulted at large public libraries.

R100.—Radio principles

- R113 Mesny, R. Observations et travaux recents sur la propagation des ondes electromagnetiques. (Recent observations and work on the propagation of electromagnetic waves.) *L'Onde Electrique*, 7, pp. 129-155; April, 1928.
(Review of work done for two years on the question of propagation.)
- R113 Taylor, A. H., and Young, L. C. Studies of high-frequency radio-wave propagation. *Proc. Inst. Radio Engrs*, 16, pp. 561-578; May, 1928.
(Studies of multiple signals. Time of propagation of round-the-world signals and also of echoes having a very much shorter transmission distance. Method worked out for predicting in advance when round-the-world signals are likely to appear.)
- R113.3 Pratt, H. Apparent night variations with crossed-coil radiobeacons. *Proc. Inst. Radio Engrs.*, 16, pp. 652-57; May, 1928.
(Describes night direction shifts and fading of signals from directive type of radiobeacon as received on an airplane in flight.)
- R113.3 Friis, H. T. Oscillographic observations on the direction of propagation and fading of short waves. *Proc. Inst. Radio Engrs.*, 16, pp. 658-665; May, 1928.
(Observations made on the 16-meter transatlantic signals to determine variation of direction of propagation and amount of fading.)
- R113.5 Nodon, A. Relations entre la propagation des ondes électro-magnétiques, l'activité solaire et l'état atmosphérique. (Relations between the propagation of electromagnetic waves, solar activity, and amount of atmospheres.) *L'Onde Electrique*, 7, pp. 156-161; April, 1928.

- R120 Green, E. Short-wave aerial systems—An elementary theory of the transmission of high-frequency energy along the feeders. *Experimental Wireless* (London), 5, pp. 304-311; June, 1928. (Discussion based on theory of Heaviside. Results of transmission along feeder lines under different conditions.)
- R127 The equivalent inductance and capacity of an aerial. *Experimental Wireless* (London), 5, pp. 297-299; June, 1928. (Calculations of inductance and capacity of antenna by considering it as a transmission line.)
- R130 von Ardenne, M., and Stoff, W. Zusammenfassender Bericht—Über die Kompensation der schädlichen Kapazitäten und ihrer Rückwirkungen bei Elektronenröhren. (Summarized report—On the compensation of the properties, capacities, and their reaction in electron tubes.) *Zeits. für Hochfrequenztechnik*, 31, pp. 122-128, April; pp. 152-157, May, 1928. (Theoretical discussion.)
- R130 Ashworth, M. H. Graphical computations. *Experimental Wireless* (London), 5, pp. 311-314; June, 1928. (Applies graphical method of integration to electron tubes.)
- R131 Döring, E. Über den Einfluss hoher ohmscher Anodenwiderstände auf den Gitterwiderstand von Verstärkeröhren. (Influence of higher plate resistance on the grid resistance of amplifier tubes.) *Zeits. für Hochfrequenztechnik*, 31, pp. 116-120; April, 1928. (Experimental data on the mutual effects of the two internal resistances.)
- R131 Lange, H. Die Stromverteilung in Dreielektrodenröhren und ihre Bedeutung für die Messung der Voltaspannung. (The current distribution in three-electrode tubes and their importance for the measuring of voltages.) *Zeits. für Hochfrequenztechnik*, 31, pp. 105-109, April; pp. 133-140, May 1928. (Theoretical discussion of tube characteristics.)
- R132 Baggally, W. On banks of parallel valves feeding resistance loads without distorting the wave form. *Experimental Wireless* (London), 5, pp. 315-21; June, 1928. (Mathematical theory of design of bank of electron tubes for supplying power to loud-speakers. Treatment confined to case of a nonreactive load.)
- R134 Ballantine, S. Detection by grid rectification with the high-vacuum triode. *Proc. Inst. Radio Engrs.*, 16, pp. 593-613; May, 1928. (Method for experimentally ascertaining frequency distortion in detection. Method of securing efficient grid rectification in superheterodyne systems.)
- R141 Bird, L. T. Reactance and admittance curves applied to tuned circuits with and without resistance. *Experimental Wireless* (London), 5, pp. 327-334; June, 1928. (Reactance and admittance curves developed from considering vector diagrams and properties of inductance and capacity.)
- R143 Reed, M. Damping due to grid current in the case of a valve oscillator. *Experimental Wireless* (London), 5, pp. 329-324; June, 1928. (Calculation of damping introduced in an oscillatory circuit by grid current.)
- R152 Basso, E. Über eine Methode zur Erzeugung von sehr kurzen elektrischen Wellen mittels Hochfrequenzfunken. (On a method of production of very short electric waves by means of high-frequency sparks.) *Zeits. für Hochfrequenztechnik*, 31, pp. 97-105; April, 1928. (Production and measurement of characteristics.)

R200.—Radio measurements and standardization

- R201.7 Schneider, W. A. Use of an oscillograph for recording vacuum-tube characteristics. *Proc. Inst. Radio Engrs.*, 16, pp. 674-80; May, 1928. (Results obtained with oscillograph for plotting photographically vacuum-tube characteristics.)
- R210 Dellinger, J. H. The status of frequency standardization. *Proc. Inst. Radio Engrs.*, 16, pp. 579-92; May, 1928. (Accuracy of frequency standards. Intercomparison of frequency standards of United States with foreign countries reported.)
- R210 Dellinger, J. H. Finding the "yardsticks" of radio at the Bureau of Standards. *Popular Radio*, 13, pp. 290-291; April, 1928. (Work of radio section of Bureau of Standards in frequency standardization.)
- R214 Jouaust, R. Quelques modes particuliers de vibration des quartz piezoelectriques. (Certain modes of vibration of piezoelectric quartz plates.) *L'Onde Electrique*, 7, pp. 125-128; March, 1928. (Show deformations of quartz plates which are more complex than have been found before.)
- R251.2 Spot-welded thermojunctions. *Experimental Wireless* London, 5, p. 314; June, 1928. (Description of instruments.)
- R270 Judson, E. B. An automatic recorder for measuring the strength of radio signals and atmospheric disturbances. *Proc. Inst. Radio Engrs.*, 16, pp. 666-670; May, 1928. (Apparatus described for automatically recording field intensity of low-frequency signals and atmospheric disturbances.)

R300.—Radio apparatus and equipment

- R334 Decaux, B. Applications nouvelles des lampes a quatre electrodes. (New applications of four-electrode electron tubes.) *L'Onde Electrique*, 7, pp. 119-124; March, 1928. (Uses of these electron tubes for relays, multivibrators, etc. Plate on electron tube can be small and sometimes the signal itself can be used to operate the tube.)

- R334 Screened grid valves—Informal discussion at meeting of wireless section, Institution of Electrical Engineers of London. *Experimental Wireless (London)*, 5, pp. 335-338; June, 1928.
(Application of these tubes to radio-frequency amplification.)
- R344.3 Byrnes, I. F. Recent developments in low power and broadcasting transmitters. *Proc. Inst. Radio Engrs.*, 16, pp. 614-651; May, 1928.
(Description of various types of radio-transmitting equipment ranging in output from 200 to 2,000 watts. Application of master-oscillator power-amplifier circuits for low and medium frequency transmitting sets. Uses of piezo oscillator control for high-frequency and broadcasting transmitting sets. Brief explanation given of equisignal system of radiobeacon transmission.)
- R351 Lampkin, G. F. How to build a beat-frequency oscillator. *Radio Broadcast*, 13, pp. 156-158; July, 1928.
(Constructional details of laboratory-type oscillator are given.)
- R384.1 Griffiths, W. H. F. Substandard wave meter design. *Experimental Wireless (London)*, 5, pp. 324-326; June, 1928.
(Design of a radio-frequency frequency meter with new type of inductances for 30,000 kilocycles.)
- R525 Eisner, F.; Fassbender, H.; Kuribaum, G. Leistungs- und Strahlungsmessungen an Flugzeug- und Bodenstationen. (Energy and radiation measurements on aircraft and ground stations.) *Zeits. fur Hochfrequenztechnik*, 31, pp. 109-116, April; pp. 141-151, May, 1928.
(Measurements of power in antennas on aircraft and ground station. T-shaped antenna used at ground station and trailing-wire antenna on aircraft.)
- R526.2 Franck, P. Le radiocompass et la navigation aerienne. (The radiocompass and aerial navigation.) *L'Onde Electrique*, 7, pp. 109-113; March, 1928.
(Discusses an ideal radiocompass which could be used on aircraft for direct reading of bearings.)
- R536 Eyr, A. S., and Keys, D. A. Geophysical prospecting. *Scientific American*, 138, pp. 414-417 May; pp. 508-511, June, 1928.
(Description of various methods used. Based on Bureau of Mines Tech. Paper No. 420.)
- R550 Eckersley, P. P. The design and distribution of wireless broadcasting stations for a national service. *Jnl. Institution Elec. Engrs. (London)*, 66, pp. 501-523; May, 1928.
(Discusses problems in the distribution and design of broadcasting stations.)
- R582 Clarkson, R. P. What hope for real television? *Radio Broadcast*, 13, pp. 125-128; July, 1928.
(Résumé of the different methods of television.)

R800.—*Nonradio subjects*

- 621.382 Pages, A. La telegraphie multiple par courantes de frequences audibles. (Multiplex telegraphy for currents of audible frequencies.)
(Description of cable system used by French company which uses band filters in cable telegraphy so that speed of signal will not be impeded by deformations which occur at certain frequencies.)

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